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Stephanie Sharrett

(Name)

(Signature)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Robert B. Saethre et al.

Serial No.: 10/606,412

Filing Date: June 25, 2003

Title: METHOD AND APPARATUS FOR
ELECTRONICALLY
INTERCONNECTING HIGH VOLTAGE
MODULES POSITIONED IN
RELATIVELY CLOSE PROXIMITY

Examiner: Edwin A. Leon

Group Art Unit: 2833

Conf. No.: 5670

Mail Stop Appeal Brief - Patents
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APPLICANT'S APPEAL BRIEF

In response to the Office Action mailed October 27, 2005, Applicants submit the following amendments and remarks.

Applicants filed a Notice of Appeal in the above captioned application on April 18, 2005, responsive to a second Office Action dated February 10, 2005, which is not Final. Applicants hereby present Applicants' Appeal Brief, in triplicate.

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(1) Real Party In Interest

The real party in interest in the above captioned application is Cymer, Inc. a corporation of the state of Nevada and the assignee of the above captioned application from the applicant named inventors.

(2) Related Appeals and Interferences

There are no related appeals or interferences.

(3) Status of the Claims

Claims 1-28 and 33-72 remain in the above captioned application. Claims 1-6, 13, 14, 17, 18, 25-28, 37-45, 52-57, 64-67, and 70-72 stand rejected and claims 7-12, 19-24, 33-36, 46-51, 58-63, 68, and 69 are deemed allowable in the above referenced Office Action. Claims 29-32 were cancelled in a Response dated November 15, 2004 to an Office Action dated October 20, 2004. Claims 40-72 were added by that same Response. The Claims on appeal are claims 1-6, 13, 14, 17, 18, 25-28, 37-45, 52-57, 64-67, and 70-72.

(4) Status of Amendments

There are no outstanding amendments to the above captioned application.

(5) Statement of the Invention

As the Specification in the above captioned application notes, the present invention relates to:

high pulse powered electrical equipment and other high voltage electrical equipment which is segregated into modules which in turn are positioned relatively close to each other, e.g., in a cabinet, e.g., housing other equipment, e.g., the optics, laser chambers and associated other equipment for a very high power very high pulse rate excimer laser. (p. 1, lines 14-18)

The Specification goes on to note:

[I]nterconnection of modules with high voltage [must be] over a relatively robust and therefore also relatively inflexible high voltage cable In certain applications, e.g., generation of very finely tuned very short wavelength and

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narrow band width light for applications, e.g., semiconductor manufacturing lithography applications, interconnecting cables with unwanted loops or even perhaps bending of the cabling can cause undesired electrical effects, e.g., unwanted and/or misplaced inductances. For both ease of installation and ease of removal for maintenance of [sic, or] for interchange there is a need for the ability to interconnect such modules with such relatively inflexible cabling without significantly bending, twisting, crimping, looping or the like of the cabling, which can cause the above mentioned ill effects or perhaps also damage component parts within the modules during an installation or removal process.

Independent claims 1, 13, 25, 40, 52 and 64 all generally recite as an apparatus, an apparatus in means plus function language or a method:

1. An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a high voltage connector attached to at least a portion of the cable on at least one end of the cable;

a *push through high voltage connector receptor* within one module; and
a *disconnection mechanism within the one module adapted to move the high voltage connector* and the at least a portion of cable to which the high voltage connector is attached *through the connector receptor from a contact position to a housed position in a direction away from the other module* to which high voltage connection is to be made. (emphasis added)

The Specification describes the operation of the claimed invention, including the “push through high voltage connector” as follows:

Turning now to Fig.'s 1 and 2 there is shown a high voltage pulse power module 20 ... [including] a high voltage input connector assembly 30, which may include, e.g., a high voltage connector 32 and a high voltage connector receptor 34. (p. 4, lines 13-15)

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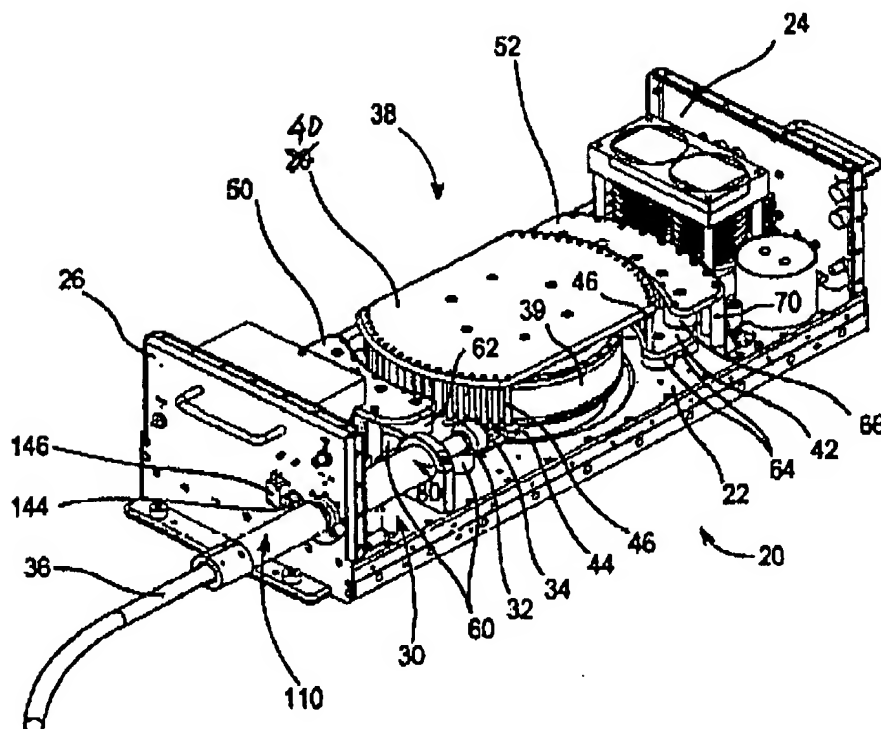


FIG. 1

The Specification of the above captioned application further goes on to note in regard to the construction and function of the inventions disclosed and claimed:

Turning now to Fig. 3 there is shown the module of Fig.'s 1 and 2 partially cut away and in cross section along the section lines 3,4 - 3,4 in Fig. 2. ... (p. 5, lines 15-16)

When the module 20 is first to be installed and/or the operator desires to remove the module, the cable 36 and the high voltage connector assembly 30 will be in the position/or moved into the position shown in Fig. 4. In this position the *high voltage connector 32 has been thrust through the opening 178 in the high voltage connector receptor [34] toward the rear wall 24 of the module 20. ...* This micro-switch also may be utilized to give an indication that the annular groove 130 has passed by the micro-switch 160 toward the rear wall 24 of the module 20 and in the opposite direction during an engaging step in which the high

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voltage connector 32 is brought into electrically engaging contact with the high voltage connector receptor 34. ...

During such an engaging step, after the module 20 has been inserted or re-inserted, the inner tube 110 may be withdrawn through the base tube 80 in which it is snugly fit and frictionally engaging, but still slideably engaging the base tube, to a position where the clamp 140 [shown in FIG. 3] again is in engagement with the annular groove 130 and the high voltage connector in turn is within the opening 178 of the high voltage connector receptor 32.

... The connector 32 and connector receptor 34, therefore, form a "push-through" high voltage connector, i.e., the connector 32 and the cable 37 to which it is attached, including at least that part of the cable forming the high voltage connection wire 37 and a surrounding insulation cladding, *moves through the connector receptor from a contact position to a housed position in a direction away from the neighboring module to which high voltage connection is desired* ...
(p. 7, line 19 – p. 8, line 26)

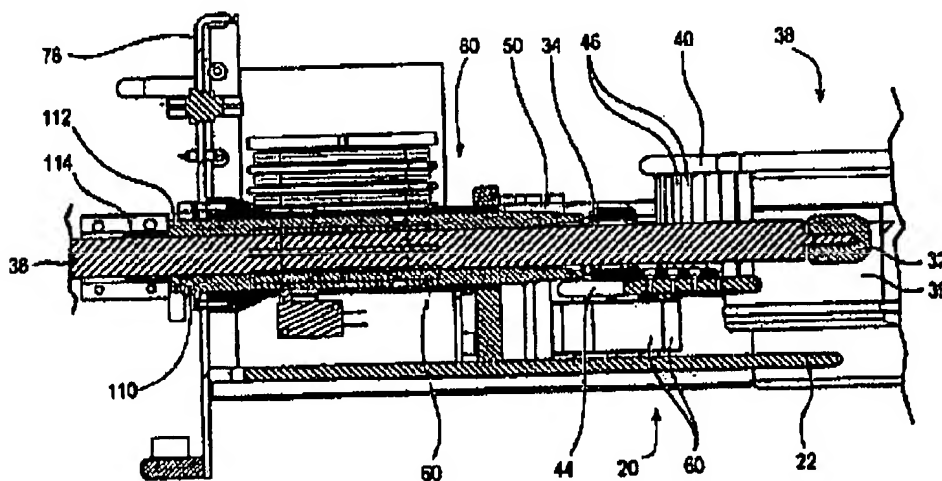


FIG. 4

Claims 37-39 and claims 70-72 generally recite, as an apparatus, as an apparatus in means plus function language and a method as follows:

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37. An apparatus for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a first high voltage connector attached to at least a portion of the cable on one end of the cable and a second high voltage connector attached to at least a portion of the cable at a second end of the cable;

a push through high voltage connector receptor within the first module;
a disconnection mechanism within the first module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made; and

a retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector.

(6) Issues

1. Whether claims 1-4, 13-14, 25-28, 40-43, 52-55, and 64-67 are patentable under 35 U.S.C. §102 (b) over United States Patent No. 6,237,690, issued to Nicholson on May 29, 2001, entitled CONNECTOR ASSEMBLY ("Nicholson").

2. Whether claims 37-39 and 70-72 are patentable under 35 U.S.C. §102 (b) over United States Patent No. 6,237,690, issued to Nicholson on May 29, 2001, entitled CONNECTOR ASSEMBLY ("Nicholson").

3. Whether claims 5-6, 17-18, 44-45 and 56-57 are patentable under 35 U.S.C. §103 (a) over Nicholson in view of United States Patent No. 5,890,926, issued to Pauza et al. issued on April 6, 1999, entitled CABLE BEND CONTROLLER (Pauza").

(7) Claim Grouping

Claims 1-4, 13-14, 25-28, 40-43, 52-55, and 64-67 stand together, claims 37-39 and 70-72 stand together and claims 5-6, 17-18, 44-45 and 56-57 stand together. The

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first group contain similar recitations and are rejected under §102(b). The second group contain similar recitations and are rejected under §102(b). The final group are rejected under §103(a).

(8) Argument

(a) Facts

Nicholson discloses a connector that is plainly different from the connector claimed in the claims at issue in the appeal. According to the Specification in Nicholson: A wellhead assembly is illustrated in FIG. 6. The wellhead assembly comprises a wellhead 100 capping a production casing 102. A spool body 3 is installed upon the wellhead 100 and production tubing 104 is run into the casing 102 until a tubing hanger 5 seats in the spool body 3.

A downhole pump 106 is provided with three phase power from a power cable 108. This cable is split into three single power cores 110, 112 and 114 at a junction box 116. The three single power cores 110, 112 and 114 are connected to the spool body 3 by three connector assemblies 1.

Referring to FIG. 1, a connector assembly 1 is installed in a wellhead installation which includes a radially inner member in the form of a tubing hanger 2 and radially outer members comprising a spool body 3 and a bonnet 4. The connector assembly 1 comprises a first connector part in the form of a plug body 5 and a second connector part in the form of a receptacle 6. The plug body 5 has an outer wall 14. It is supported by a carriage 7 which is longitudinally reciprocable in a guide tube 8. The carriage 7 is shown in its retracted position in which a chamfered front end 9 of the plug body 5 is disposed rearwardly of the tubing hanger 2.

The receptacle 6 of the connector assembly is carried by the tubing hanger with its longitudinal axis tangential to a circle about the central vertical axis of the tubing hanger 2. It is disposed inwardly of the outer periphery of the tubing hanger. It includes an electrical contact pin 10 which at its front end has a contact portion 12 and at its rear is connected to a down hole instrument cable 11. The receptacle 6 has an inner wall 15 terminating at its front end in a chamfered mouth 13. A rear end wall 16 is located at the rear of the receptacle.

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7 relative to the plug 5 is taken up by compression of the spring 33. (Col. 8, lines 1-20)

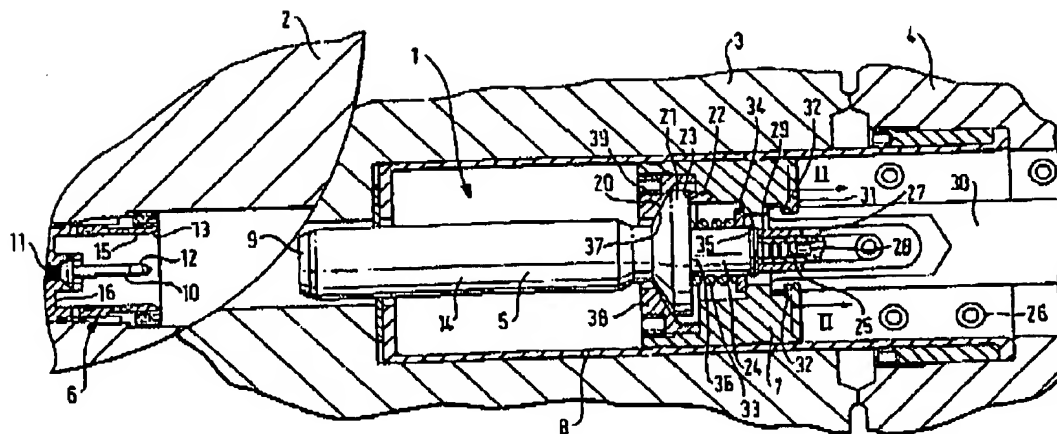


FIG. 1

This connector is clearly not a *push through high voltage connector receptor* within one module, as claimed in the first group of claims noted above, and it does not have a *disconnection mechanism within the one module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made.*

This connector also clearly does not have a *first high voltage connector attached to at least a portion of the cable on one end of the cable and a second high voltage connector attached to at least a portion of the cable at a second end of the cable as is claimed in the second group of claims noted above.* Nor does it have a *retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector.*

According to the Specification of Pauza, that patent discloses:

A cable bend controller (50) comprising a relatively rigid member includes a body section (52) having first and second cable-engaging sections (56,60) at opposing ends thereof. The first and second cable-engaging sections

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(56) are securable to a cable at a first and second spaced apart locations. The said body section (52) is curved about a preselected radius such that said first cable-engaging section (56) is oriented at a substantial angle to said second cable-engaging section, (60) the body section thereby defining an externally arcuate concave cable-engaging surface (54). Upon fastening the first and second cable-engaging sections (56,60) to the cable (42), cable (42) is required to assume a bend to lie along said externally arcuate concave cable-engaging surface (54).
(Abstract)

b) The Examiner's Positions

Claims 1-6, 13-18, 25-30 and 37-39 were rejected under 35 U.S.C. §102 (b) as anticipated by Nicholson.

With regard to claims 1, 13, 25, 40, 52 and 64, the Examiner has taken the position that Nicholson discloses:

an apparatus comprising: a high voltage connector (10) attached to at least a portion of the cable (11) on at least one end of the cable (11); a push through high voltage connector receptor (inside plug body 5, Column 6, 66-67) means within one module (3); and a disconnection (Column 8, Lines 1-8 explain that (30) urges the carriage forwardly therefore it is inherent that (30) can also be used as a disconnection means by moving it rearwardly) mechanism (30) within the one module adapted to move the high voltage connector (10) and the at least a portion of cable (11) to which the high voltage connector is attached through the connector receptor (inside plug body 5; Column 6, 66-67) from a contact position to a housed position in a direction away from the other module (2) to which the high voltage connection is made. See Figs. 1-4 and 6.

With regard to claims 2, 14, 26, 41, 53, and 65, the Examiner has taken the position that Nicholson:

discloses the high voltage connector receptor (inside plug body; Column 6, 66-67) comprising: an open cylinder connector (5) with a contacting surface (column 6, 66-67) contained on the interior wall (Col. 6, 66-67) of the cylindrical connector (5). See Figs. 1-4 and 6.

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With regard to claims 3, 4, 15-16, 27-28, 42-43, 54-55 and 66-67, the Examiner has taken the position that:

Nicholson discloses an interlock mechanism (means) (actuating mechanism, Column 8, Line 3) in operative connection with the disconnection mechanism (30) and adapted to provide an indication of the high voltage connector 10 being in a position other than in the contact position relative to the connector receptor (inside body plug 5; column 6, 66-67). See Figs. 1-4, 6.

With respect to claims 37-39 and 70-72, the Examiner has taken the position that Nicholson shows the above noted features referenced by the Examiner in regard to claims 1, 13, 25, 40, 52 and 64, along with "a second high voltage connector (5) attached to at least a portion of the cable (11) at a second end of the cable (11)" and "a retractable connector means (6) within the second module (2) moveable toward the first module (3) from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector 95). See Figs. 1-4 and 6."

The Examiner has taken the position that Pauza discloses:

a similar connector (70) having an engaging mechanism (66) engaging the cable (42) and holding the cable (42) in a fixed position relative to a disconnection mechanism (12). See Figs. 2-4.

c) Applicable Law

An invention is patentable under 35 U.S.C. §102 unless anticipated by the prior art. Anticipation occurs if " 'a prior art reference ... disclose[s] every limitation of the claimed invention, either explicitly or inherently.' " *Mehl/Biophile International Corp. v. Milgraum*, 192 F.3d 1362, 1365, 52 U.S.P.Q. 2d 1303, 1305 (Fed. Cir. 1999); *General Electric Co. v. Nintendo*, 179 F.3d 1350, 1356, 50 U.S.P.Q. 2d 1910, 1912 (Fed. Cir. 1999) ("anticipation requires that a single prior art reference disclose every limitation in a patent claim."); *Union Oil Co. of California v. Atlantic Richfield Co.*, 208 F.3d 989, 994-95, 54 U.S.P.Q. 2d 1227, 1230-31 (Fed Cir. 2000) ("a party seeking to invalidate a patent under §102 [must] show that the allegedly invalidating prior art contains 'each and every element of [the] claimed invention.' "); *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (quoted in the USPTO Manual of Patent

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Examining Procedure, "MPEP" §2131); *Verdegaul Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (quoted in the MPEP). The Examiner has not asserted inherency, except in a manner not related to finding an element missing from the disclosure of Nicholson that applicants disagree would be inherent. Therefore, no discussion is contained herein of the meaning of inherency.

Whether or not the Examiner has established *prima facie* obviousness allocates the burden of going forward with the evidence during the examination process.¹ Initially the burden of going forward is on the Examiner to establish *prima facie* obviousness otherwise the applicant has no obligation to submit evidence of nonobviousness.² *Prima facie* obviousness is established by a "suggestion or motivation," either in the references themselves or in the ordinary skill of the art, to modify the reference or to combine references, a "reasonable expectation of success," and the combination must teach or suggest all the claim limitations.³

Initially the Examiner must show "some suggestion of the desirability of doing what the inventor has done."⁴ Either "the references must expressly or impliedly suggest the claimed invention" or the Examiner "must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references."⁵ The Examiner is also required to show from the record that the suggestion to combine is in the references and bald statements of obviousness to combine, or that the combination "involves routine skill in the art" cannot stand under *In re Lee*, 277 F.3d 1338, 1345, 61 U.S.P.Q. 2d 1430 (Fed. Cir. 2002) ("deficiencies of the cited references cannot be remedied by the Board's general conclusions about what is "basic knowledge" or "common sense." ' The Board's findings must extend to all material facts and must be documented on the record, lest the 'haze of

¹ M.P.E.P. §2142. See *In re Rinehart*, 531 F.2d 1048, 189 U.S.P.Q. 143 (C.C.P.A. 1976); *In re Linter*, 458 F.2d 1013, 173 U.S.P.Q. 560 (C.C.P.A. 1972); *In re Saunders*, 444 F.2d 599, 170 U.S.P.Q. 213 (C.C.P.A. 1971); *In re Tiffin*, 443 F.2d 394, 170 U.S.P.Q. 88 (C.C.P.A. 1971), *amended*, 448 F.2d 791, 171 U.S.P.Q. 294 (C.C.P.A. 1971); *In re Warner*, 379 F.2d 1011, 154 U.S.P.Q. 173 (C.C.P.A. 1967), *cert. denied*, 389 U.S. 1057 (1968).

² M.P.E.P. §2142.

³ M.P.E.P. §2142. Such teaching or suggestion and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. M.P.E.P. §2142. See *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). See M.P.E.P. §§ 2143 - 2143.03 regarding these criteria.

⁴ M.P.E.P. §2142.

⁵ M.P.E.P. §2142. *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). See M.P.E.P. §§2144 - 2144.09 regarding reasoning supporting obviousness rejections.

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so-called expertise' acquire insulation from accountability.") or *In re Thrift*, 298 F.3d 1357, 1362, 63 U.S.P.Q. 2d 2002 (Fed. Cir. 2002) (finding of obviousness as to one claim was proper where references themselves suggested combination but the simple assertion that "[t]he use of grammar is old and well known in the art of speech recognition as a means of optimization which is highly desirable," did not make out a case of *prima facie* obviousness).

Unless the motivation to combine the references is "immediately apparent," The Examiner must explain why the combination is proper.⁶ The prior art must be analogous art. Analogous art must either be in the field of applicant's endeavor or, if not, then reasonably pertinent to the particular problem with which the inventor is concerned.⁷ The art relied upon must be something that "logically would have commended itself to the inventor's attention." *Clay, supra*.

For *prima facie* obviousness all of the claim limitations must be taught or suggested by the prior art.⁸ If an independent claim is nonobvious any claim depending from the independent claim is also nonobvious.⁹

d) Analysis

1) Issue 1

With regard to claims 1, 13, 25, 40, 52 and 64, applicants respectfully submit that Nicholson, and specifically the portion(s) directly cited by the Examiner, does not teach or suggest a "push through high voltage connector" as above described and as claimed. Nicholson discloses an ordinary male-female connector specifically described, as noted above, as having a "rear end wall 16." This prevents the connector of Nicholson from being a "push through" connector as that is described and claimed in the above captioned.

⁶ M.P.E.P. §2142. See *Ex parte Skinner*, 2 U.S.P.Q.2d 1788 (Bd. Pat. App. & Inter. 1986). A rejection including numerous grounds for rejections must explain with "reasonable specificity" at least one rejection, or no *prima facie* obviousness exists. M.P.E.P. §2142. See *Ex parte Blanc*, 13 U.S.P.Q.2d 1383 (Bd. Pat. App. & Inter. 1989) (rejection based on nine references with at least 40 prior art rejections and no explanation of any one rejection with reasonable specificity reversed).

⁷ M.P.E.P. §2141.01 (a), *citing*, *In re Oetiker*, 977 F.2d 1443, 1446, 24 U.S.P.Q. 2d 1443, 1445 (Fed. Cir. 1992), *In re Clay*, 966 F.2d 656, 659, 23 U.S.P.Q.2d 1058, 1060-61 (Fed. Cir. 1992) and *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 U.S.P.Q. 2d 1767 (Fed. Cir. 1993).

⁸ M.P.E.P. §2143.03. See *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974); *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970) (must consider all of the claim language).

⁹ M.P.E.P. §2143.03. See *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

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This is true whether the plug body 5 or the connector receptacle 6 is considered by the Examiner to be a "push through" connector. The connector of Nicholson has none of the advantages noted in the above quoted portion of the Specification of the above captioned application, e.g., with respect to such connectors as applied to closely spaced modules. The rear wall 16 of the connector receptor 6 of Nicholson and the rest of the arrangement of Nicholson prevents the apparatus disclosed in Nicholson, as noted above, being able to function to "move the high voltage connector ... through the connector receptor from a contact position to a housed position." It also prevents doing so in a direction away from the other module" If the plug body 5 is viewed as the "push through" connector, neither does the connector 10 push through the plug body 5, in going from a connected position to a housed position, nor does the connector 10 go from the connected position to a housed position through the plug body (5) or in a direction away from the other module (2).

The apparatus of Nicholson neither moves to a housed position "through the connector receptor" (6) or (5) nor does it move to the housed position from a connected position through the connector receptor in a direction "away from" the adjacent module. Also, as claimed, the connector and "at least a portion of the cable to which it is connected" passes through the receptor to the housed position in a direction away from the other module. At best, the plug body 5 passes into the receptor assembly 6 or the connector 10 passes into the plug body 5, but a portion of the cable passes through neither plug body 5 or receptor 6.

Regarding the construction of Nicholson as specifically set forth by the Examiner, the high voltage connector (10) attached to at least a portion of the cable (11) on at least one end of the cable (11) *does not* interact with a "push through high voltage connector receptor (inside plug body 5, Column 6, 66-67) means within one module (3)" in the manner claimed. *Neither is* the referenced disconnection mechanism (30) within the carriage 8 "adapted to move the high voltage connector (10) and the at least a portion of cable (11) to which the high voltage connector is attached *through the connector receptor* (inside plug body 5; Column 6, 66-67) *from a contact position to a housed position.*" The contact position is when the connector 10 is inside the plug body 5 having moved into that position in one direction and then the housed position (disconnected) is when the

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plug body is moved in the opposite direction, with the connector moving back out to a housed position (disconnected) in the opposite direction. This is a standard male female connector construction and operation. There is no movement of connector 10 "through" the plug body 5 to a housed position from a contact position.

If anything, the high voltage connector (10) of Nicholson is moved from a housed (disconnected) position to a connected position "through" the high voltage connector receptor (5).

Therefore, for at least the reasons noted, Nicholson does not anticipate claims 1, 13, 25 40, 52 or 64.

Applicants do not agree with the Examiner that the recitation "for electrically connecting two closely positioned high voltage modules with little or no bend and without any lopes in an electrical interconnecting coaxial cable" is without patentability consequence, but, due to the above, do not find it necessary to argue otherwise for the purposes of this appeal.

With regard to claims 2, 14, 26, 41, 53 and 65 applicants respectfully submit that Nicholson does not disclose a "open cylinder connector" as disclosed and claimed in the above captioned application, whereby, e.g., the "high voltage connector receptor" comprising such a "open cylinder connector with a contacting surface on the interior wall of the cylindrical connector" allows the high voltage connector to enter the open cylinder and also "push through" the other end of the open cylinder to disconnect the connection. Therefore, claims 2, 14, 26, 41, 53 and 65 are not anticipated by Nicholson. Claims 2, 14, 26, 41, 53 and 65 are also allowable based on *In re Fine*, noted above.

With regard to claims 3, 4, 15-16, 27-28, 42-43, 54-55 and 66-67 applicants respectfully submit that the actuating mechanism, which is not shown in Nicholson, does not perform an interlock function to indicate that the high voltage connector (10) is in a position other than in the contact position, as claimed. Applicants submit that, at best, the actuating mechanism can provide an indication (though Nicholson does not teach or suggest performing this function or how it would be accomplished) of what position the plug body 5 is in with regard to the guide tube 8 and/or the spool body 3. Even with the plug body extended due to the operation of the actuating mechanism referenced by the Examiner, there is and can be no indication one way or the other that a connector (10) is

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or is not in contact with the plug body. The actuator could be actuated to move the plug body 5 when the tubing hanger 2 is nowhere near the spool body 3 and, thus there is an impossibility of connection. Therefore no interlock, as claimed, can be gleaned from the position of the actuator mechanism, not shown in Nicholson. For this reason claims 3, 4, 15-16, 27-28, 42-43, 54-55 and 66-67 are not anticipated by Nicholson. Claims 3, 4, 15-16, 27-28, 42-43, 54-55 and 66-67 also allowable based on *In re Fine*, noted above.

2) Issue 2

With regard to claims 37-39 and 70-72, in addition to the noted differences discussed above, the referenced portions of Nicholson plainly do not constitute a *"first high voltage connector attached to at least a portion of the cable on one end of the cable and a second high voltage connector attached to at least a portion of the cable at a second end of the cable"*. The connector 10 is connected to one end of the cable 11 in Nicholson, but nothing is disclosed about what is on the other end of that cable (11). Also plainly the high voltage connector (5) is not what is connected to the other end of the cable (11), as suggested by the Examiner. If anything, after connection is established between the connector 10 and the plug body 5, they are both connected to the same end of the cable (11).

In addition, Nicholson does not disclose a *"retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector."* The connector receptacle 6 referenced by the Examiner is not "retractable", nor is the connector 10 within it "retractable." Nor is it "moveable toward the first module from a retracted position." If anything, the plug body which the Examiner has referenced as the "push through" connector in the first module 3, is also retractable and extendable from the first module 3 to the second module 2 and therefore, not extendable from the second module toward the first module.

The referenced connector 6 also does not *"extend from a retracted position to an extended position in which extended position the electrical contact is made with the second high voltage connector."* The connector assembly 6 does not move at all with respect to what the Examiner references as the second module (2).

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3) Issue 3

With regard to claims 5-6, 17-18, 44-45, and 56-57 for the above stated reasons, the Examiner has not made out a case of *prima facie* obviousness of these claims over Nicholson in view of Pauza. The failures of Nicholson to disclose the other elements of the claims, as noted above, means that, regardless of what Pauza discloses, all of the elements of claims 5-6, 17-18, 44-45, and 56-57 are not found in the combination of Nicholson and Pauza. The claims are also allowable under *In re Fine* discussed above.

In addition, applicants do not agree that there is any suggestion to combine or that the Examiner has made a showing of a suggestion or motivation to combine the structures referenced in Pauza or that Pauza is even analogous art to a connector of the type disclosed and claimed in the above captioned application and specifically directed to solving the problems that the above noted portions of the specification of the above captioned application address. However, for the above noted reasons at least, the rejection of claims 5-6, 17-18, 44-45, and 56-57 is improper without any need to consider this second prong of the requirements for a *prima facie* case for obviousness.

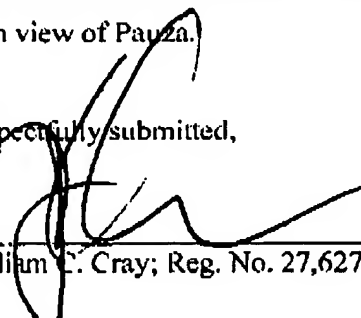
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Conclusion

For the reasons noted above, the rejections of claims 1-4, 13-14, 25-28, 37-39, 40-43, 52-55, 64-67 and 70-72 are not anticipated by Nicholson under 35 U.S. C. §102(b) and the Examiner should be instructed to withdraw the rejections of claims 1-4, 13-14, 25-28, 37-39, 40-43, 52-55, 64-67 and 70-72.

For the above stated reasons the Examiner's rejection of claims 5-6, 17-18, 44-45, and 56-57 under 35 U.S.C. §103(a) over Nicholson in view of Pauza is not proper and the Examiner should be instructed to withdraw the rejection of claims 5-6, 17-18, 44-45, and 56-57 under 35 U.S.C. §103(a) over Nicholson in view of Pauza.

Respectfully submitted,


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December 20, 2005
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**Appeal Brief Appendix
Claims At Issue**

1. (Original): An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a high voltage connector attached to at least a portion of the cable on at least one end of the cable;

a push through high voltage connector receptor within one module; and,

a disconnection mechanism within the one module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made.

2. (Original): The apparatus of claim 1 further comprising:

the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

3. (Original): The apparatus of claim 1, further comprising:

an interlock mechanism in operative connection with the disconnection mechanism and adapted to provide an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

4. (Original): The apparatus of claim 2, further comprising:

an interlock mechanism in operative connection with the disconnection mechanism and adapted to provide an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

5. (Original): The apparatus of claim 3, further comprising:

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an engaging mechanism engaging the cable and holding the cable in a fixed position relative to the disconnection mechanism as the high voltage connector moves between the contact position and the housed position.

6. (Original): The apparatus of claim 4, further comprising:

an engaging mechanism engaging the cable and holding the cable in a fixed position relative to the disconnection mechanism as the high voltage connector moves between the contact position and the housed position.

7. (Original): The apparatus of claim 1, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the clamping mechanism to prevent the high voltage connector from moving from the contact position.

8. (Original): The apparatus of claim 2, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

9. (Original): The apparatus of claim 3, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

10. (Original): The apparatus of claim 4, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative

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with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

11. (Original): The apparatus of claim 5, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

12. (Original): The apparatus of claim 6, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

13. (Original): An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:
a high voltage connector attached to at least a portion of the cable on at least one end of the cable;
a push through high voltage connector receptor means within one module for connecting and disconnecting the high voltage connector to the module; and,
a disconnection means within the one module for positioning the high voltage connector and the at least a portion of cable to which the high voltage connector is attached in a housed position by moving the cable in a direction away from the other module to which high voltage connection is to be made.

14. (Original): The apparatus of claim 13 further comprising:
the high voltage connector receptor comprising:
an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

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15. (Original): The apparatus of claim 13, further comprising:
an interlock means for, in cooperation with the disconnection means, providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

16. (Original): The apparatus of claim 14, further comprising:
an interlock means for, in cooperation with the disconnection means, providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

17. (Original): The apparatus of claim 15, further comprising:
an engaging means for engaging the cable and holding the cable in a fixed position relative to the disconnection means as the high voltage connector moves between the contact position and the housed position.

18. (Original): The apparatus of claim 16, further comprising:
an engaging means for engaging the cable and holding the cable in a fixed position relative to the disconnection means as the high voltage connector moves between the contact position and the housed position.

19. (Original): The apparatus of claim 13, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

20. (Original): The apparatus of claim 14, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the

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disconnection means to prevent the high voltage connector from moving from the contact position.

21. (Original): The apparatus of claim 15, further comprising:

a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

22. (Original): The apparatus of claim 16, further comprising:

a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

23. (Original): The apparatus of claim 17, further comprising:

a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

24. (Original): The apparatus of claim 18, further comprising:

a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

25. (Original): A method for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

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attaching a high voltage connector to at least a portion of the cable on at least one end of the cable;

providing a push through high voltage connector receptor within one module for connecting and disconnecting the high voltage connector to the module; and,

positioning the high voltage connector and the at least a portion of cable to which the high voltage connector is attached in a housed position by moving the cable through the push through high voltage connector receptor in a direction away from the other module to which high voltage connection is to be made.

26. (Original): The method of claim 25 further comprising:

the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

27. (Original): The method of claim 25, further comprising:

providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor to prevent energizing the cable when the connector is in other than the contact position.

28. (Original): The method of claim 26, further comprising:

providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor to prevent energizing the cable when the connector is in other than the contact position.

29.-32. (Canceled)

33. (Original): The apparatus of claim 27, further comprising:

clamping the disconnection means to prevent the high voltage connector from moving from the contact position.

34. (Original): The apparatus of claim 28, further comprising:

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clamping the disconnection means to prevent the high voltage connector from moving from the contact position.

35. (Original): The apparatus of claim 29, further comprising:
clamping the disconnection means to prevent the high voltage connector from moving from the contact position.

36. (Original): The apparatus of claim 29, further comprising:
clamping the disconnection means to prevent the high voltage connector from moving from the contact position.

37. (Original): An apparatus for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a first high voltage connector attached to at least a portion of the cable on one end of the cable and a second high voltage connector attached to at least a portion of the cable at a second end of the cable;

a push through high voltage connector receptor within the first module;

a disconnection mechanism within the first module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made; and

a retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector.

38. (Original): An apparatus for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

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a first and a second high voltage connector attached to at least a portion of the cable on each end of the cable;

a push through high voltage connector receptor means within the first module for connecting and disconnecting the high voltage connector to the first module;

a disconnection means within the first module for positioning the high voltage connector and the at least a portion of cable to which the high voltage connector is attached in a housed position by moving the cable in a direction away from the other module to which high voltage connection is to be made; and,

a retractable connector means within the second module moveable toward the first module from a retracted position into an extended position, for making electrical contact with the second high voltage connector.

39. (Original): A method for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

placing a first and a second high voltage connector on at least a portion of the cable on each end of the cable;

a push through high voltage connector receptor means within the first module for connecting and disconnecting the high voltage connector to the first module;

a disconnection means within the first module for positioning the high voltage connector and the at least a portion of cable to which the high voltage connector is attached in a housed position by moving the cable in a direction away from the other module to which high voltage connection is to be made; and,

a retractable connector means within the second module moveable toward the first module from a retracted position into an extended position, for making electrical contact with the second high voltage connector.

40. (Previously presented): An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

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a high voltage connector electrically connected to at least a portion of the cable on at least one end of the cable;

a push through high voltage connector receptor within one module; and,

a disconnection mechanism within the one module adapted to move the high voltage connector through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made.

41. (Previously presented): The apparatus of claim 40 further comprising:

the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

42. (Previously presented): The apparatus of claim 40, further comprising:

an interlock mechanism in operative connection with the disconnection mechanism and adapted to provide an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

43. (Previously presented): The apparatus of claim 41, further comprising:

an interlock mechanism in operative connection with the disconnection mechanism and adapted to provide an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

44. (Previously presented): The apparatus of claim 42, further comprising:

an engaging mechanism engaging the cable and holding the cable in a fixed position relative to the disconnection mechanism as the high voltage connector moves between the contact position and the housed position.

45. (Previously presented): The apparatus of claim 43, further comprising:

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an engaging mechanism engaging the cable and holding the cable in a fixed position relative to the disconnection mechanism as the high voltage connector moves between the contact position and the housed position.

46. (Previously presented): The apparatus of claim 40, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the clamping mechanism to prevent the high voltage connector from moving from the contact position.

47. (Previously presented): The apparatus of claim 41, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

48. (Previously presented): The apparatus of claim 42, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

49. (Previously presented): The apparatus of claim 43, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

50. (Previously presented): The apparatus of claim 44, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative

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with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

51. (Previously presented): The apparatus of claim 45, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

52. (Previously presented): An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a high voltage connector electrically connected to at least a portion of the cable on at least one end of the cable;

a push through high voltage connector receptor means within one module for connecting and disconnecting the high voltage connector to the module; and,

a disconnection means within the one module for positioning the high voltage connector in a housed position by moving the connector through the connector receptor in a direction away from the other module to which high voltage connection is to be made.

53. (Previously presented): The apparatus of claim 52 further comprising:
the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

54. (Previously presented): The apparatus of claim 52, further comprising:

an interlock means for, in cooperation with the disconnection means, providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

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55. (Previously presented): The apparatus of claim 53, further comprising:
an interlock means for, in cooperation with the disconnection means, providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

56. (Previously presented): The apparatus of claim 54, further comprising:
an engaging means for engaging the cable and holding the cable in a fixed position relative to the disconnection means as the high voltage connector moves between the contact position and the housed position.

57. (Previously presented): The apparatus of claim 55, further comprising:
an engaging means for engaging the cable and holding the cable in a fixed position relative to the disconnection means as the high voltage connector moves between the contact position and the housed position.

58. (Previously presented): The apparatus of claim 52, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

59. (Previously presented): The apparatus of claim 53, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

60. (Previously presented): The apparatus of claim 54, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the

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disconnection means to prevent the high voltage connector from moving from the contact position.

61. (Previously presented): The apparatus of claim 55, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

62. (Previously presented): The apparatus of claim 56, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

63. (Previously presented): The apparatus of claim 57, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

64. (Previously presented): A method for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:
attaching a high voltage connector to at least a portion of the cable on at least one end of the cable;
providing a push through high voltage connector receptor within one module for connecting and disconnecting the high voltage connector to the module; and,
positioning the high voltage connector in a housed position by moving the connector through the push through high voltage connector receptor in a direction away from the other module to which high voltage connection is to be made.

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65. (Previously presented): The method of claim 64 further comprising:
the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the
interior wall of the cylindrical connector.

66. (Previously presented): The method of claim 64, further comprising:
providing an indication of the high voltage connector being in a position other
than in the contact position relative to the connector receptor to prevent energizing the
cable when the connector is in other than the contact position.

67. (Previously presented): The method of claim 65, further comprising:
providing an indication of the high voltage connector being in a position other
than in the contact position relative to the connector receptor to prevent energizing the
cable when the connector is in other than the contact position.

68. (Previously presented): The apparatus of claim 66, further comprising:
clamping the disconnection means to prevent the high voltage connector from
moving from the contact position.

69. (Previously presented): The apparatus of claim 67, further comprising:
clamping the disconnection means to prevent the high voltage connector from
moving from the contact position.

70. (Previously presented): An apparatus for electrically connecting a first and a
second closely positioned high voltage module with little or no bend and without any
loops in an electrical interconnecting coaxial cable, comprising:

a first high voltage connector electrically connected to at least a portion of the
cable on one end of the cable and a second high voltage connector electrically connected
to at least a portion of the cable at a second end of the cable;

a push through high voltage connector receptor within the first module;

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a disconnection mechanism within the first module adapted to move the high voltage connector through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made; and

a retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector.

71 (Previously presented): An apparatus for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a first and a second high voltage connector electrically connected to at least a portion of the cable on each end of the cable;

a push through high voltage connector receptor means within the first module for connecting and disconnecting the high voltage connector to the first module;

a disconnection means within the first module for positioning the high voltage connector in a housed position by moving the cable in a direction away from the other module to which high voltage connection is to be made; and,

a retractable connector means within the second module moveable toward the first module from a retracted position into an extended position, for making electrical contact with the second high voltage connector.

72. (Previously presented): A method for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

electrically connecting a first and a second high voltage connector to at least a portion of the cable on each end of the cable;

providing a push through high voltage connector receptor within the first module for connecting and disconnecting the high voltage connector to the first module;

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disconnecting the high voltage connector within the first module by positioning the high voltage connector in a housed position by moving the connector in a direction away from the other module to which high voltage connection is to be made; and,

providing a retractable connector within the second module moveable toward the first module from a retracted position into an extended position and making electrical contact with the second high voltage connector in the extended position.

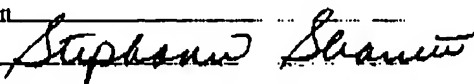
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Stephanie Sharen
(Name)

(Signature)



In re Application of:

Robert B. Saethre et al.

Serial No.: 10/606,412

Filing Date: June 25, 2003

Title: METHOD AND APPARATUS FOR
ELECTRONICALLY
INTERCONNECTING HIGH VOLTAGE
MODULES POSITIONED IN
RELATIVELY CLOSE PROXIMITY

Examiner: Edwin A. Leon

Group Art Unit: 2833

Conf. No.: 5670

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450EVIDENCE APPENDIX

None

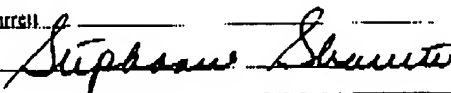
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Stephanie Sharrett
(Name)

(Signature)



In re Application of:

Robert B. Saethre et al.

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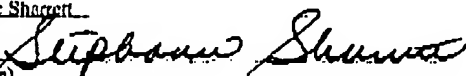
Group Art Unit: 2833

Conf. No.: 5670

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Alexandria, VA 22313-1450**RELATED PROCEEDINGS APPENDIX**

None

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| Stephanie Shagert (Name) |  |
| (Signature) | |

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Robert B. Saethre et al.

Serial No.: 10/606,412

Filing Date: June 25, 2003

Title: METHOD AND APPARATUS FOR
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Conf. No.: 5670

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Alexandria, VA 22313-1450

APPLICANT'S APPEAL BRIEF

In response to the Office Action mailed October 27, 2005, Applicants submit the following amendments and remarks.

Applicants filed a Notice of Appeal in the above captioned application on April 18, 2005, responsive to a second Office Action dated February 10, 2005, which is not Final. Applicants hereby present Applicants' Appeal Brief, in triplicate.

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(1) Real Party In Interest

The real party in interest in the above captioned application is Cymer, Inc. a corporation of the state of Nevada and the assignee of the above captioned application from the applicant named inventors.

(2) Related Appeals and Interferences

There are no related appeals or interferences.

(3) Status of the Claims

Claims 1-28 and 33-72 remain in the above captioned application. Claims 1-6, 13, 14, 17, 18, 25-28, 37-45, 52-57, 64-67, and 70-72 stand rejected and claims 7-12, 19-24, 33-36, 46-51, 58-63, 68, and 69 are deemed allowable in the above referenced Office Action. Claims 29-32 were cancelled in a Response dated November 15, 2004 to an Office Action dated October 20, 2004. Claims 40-72 were added by that same Response. The Claims on appeal are claims 1-6, 13, 14, 17, 18, 25-28, 37-45, 52-57, 64-67, and 70-72.

(4) Status of Amendments

There are no outstanding amendments to the above captioned application.

(5) Statement of the Invention

As the Specification in the above captioned application notes, the present invention relates to:

high pulse powered electrical equipment and other high voltage electrical equipment which is segregated into modules which in turn are positioned relatively close to each other, e.g., in a cabinet, e.g., housing other equipment, e.g., the optics, laser chambers and associated other equipment for a very high power very high pulse rate excimer laser. (p. 1, lines 14-18)

The Specification goes on to note:

[I]nterconnection of modules with high voltage [must be] over a relatively robust and therefore also relatively inflexible high voltage cable In certain applications, e.g., generation of very finely tuned very short wavelength and

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narrow band width light for applications, e.g., semiconductor manufacturing lithography applications, interconnecting cables with unwanted loops or even perhaps bending of the cabling can cause undesired electrical effects, e.g., unwanted and/or misplaced inductances. For both ease of installation and ease of removal for maintenance of [sic, or] for interchange there is a need for the ability to interconnect such modules with such relatively inflexible cabling without significantly bending, twisting, crimping, looping or the like of the cabling, which can cause the above mentioned ill effects or perhaps also damage component parts within the modules during an installation or removal process.

Independent claims 1, 13, 25, 40, 52 and 64 all generally recite as an apparatus, an apparatus in means plus function language or a method:

1. An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a high voltage connector attached to at least a portion of the cable on at least one end of the cable;

*a push through high voltage connector receptor within one module; and,
a disconnection mechanism within the one module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made. (emphasis added)*

The Specification describes the operation of the claimed invention, including the “push through high voltage connector” as follows:

Turning now to Fig.'s 1 and 2 there is shown a high voltage pulse power module 20 ... [including] a high voltage input connector assembly 30, which may include, e.g., a high voltage connector 32 and a high voltage connector receptor 34. (p. 4, lines 13-15)

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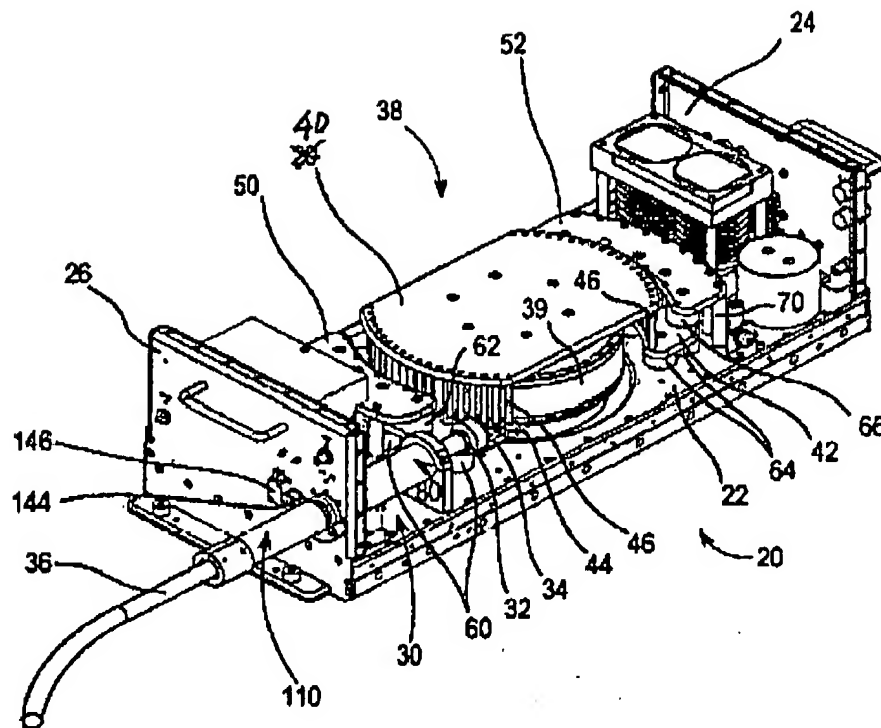


FIG. 1

The Specification of the above captioned application further goes on to note in regard to the construction and function of the inventions disclosed and claimed:

Turning now to Fig. 3 there is shown the module of Fig.'s 1 and 2 partially cut away and in cross section along the section lines 3,4 - 3,4 in Fig. 2. ... (p. 5, lines 15-16)

When the module 20 is first to be installed and/or the operator desires to remove the module, the cable 36 and the high voltage connector assembly 30 will be in the position/or moved into the position shown in Fig. 4. In this position the *high voltage connector 32 has been thrust through the opening 178 in the high voltage connector receptor [34] toward the rear wall 24 of the module 20.* ... This micro-switch also may be utilized to give an indication that the annular groove 130 has passed by the micro-switch 160 toward the rear wall 24 of the module 20 and in the opposite direction during an engaging step in which the high

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voltage connector 32 is brought into electrically engaging contact with the high voltage connector receptor 34. ...

During such an engaging step, after the module 20 has been inserted or re-inserted, the inner tube 110 may be withdrawn through the base tube 80 in which it is snugly fit and frictionally engaging, but still slideably engaging the base tube, to a position where the clamp 140 [shown in FIG. 3] again is in engagement with the annular groove 130 and the high voltage connector in turn is within the opening 178 of the high voltage connector receptor 32.

... The connector 32 and connector receptor 34, therefore, form a "push-through" high voltage connector, i.e., the connector 32 and the cable 37 to which it is attached, including at least that part of the cable forming the high voltage connection wire 37 and a surrounding insulation cladding, *moves through the connector receptor from a contact position to a housed position in a direction away from the neighboring module to which high voltage connection is desired ...*
(p. 7, line 19 – p. 8, line 26)

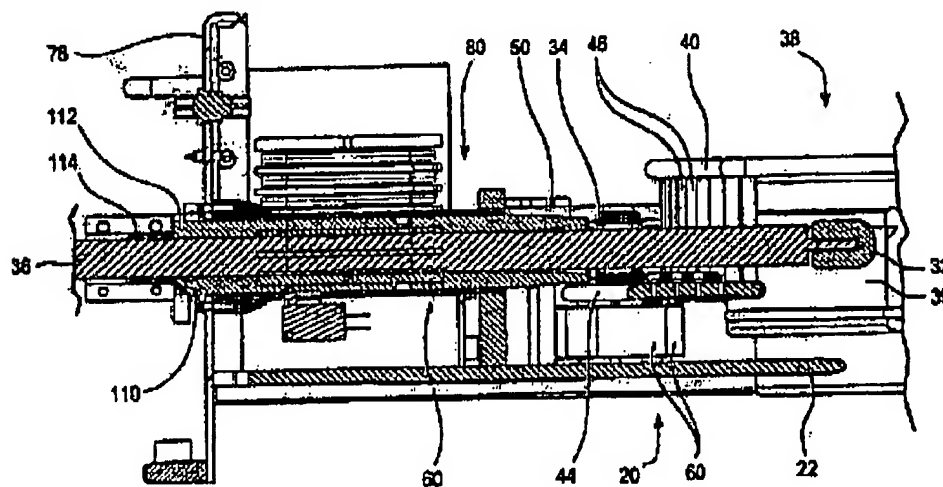


FIG. 4

Claims 37-39 and claims 70-72 generally recite, as an apparatus, as an apparatus in means plus function language and a method as follows:

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37. An apparatus for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a first high voltage connector attached to at least a portion of the cable on one end of the cable and a second high voltage connector attached to at least a portion of the cable at a second end of the cable;

a push through high voltage connector receptor within the first module;

a disconnection mechanism within the first module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made; and

a retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector.

(6) Issues

1. Whether claims 1-4, 13-14, 25-28, 40-43, 52-55, and 64-67 are patentable under 35 U.S.C. §102 (b) over United States Patent No. 6,237,690, issued to Nicholson on May 29, 2001, entitled CONNECTOR ASSEMBLY ("Nicholson").

2. Whether claims 37-39 and 70-72 are patentable under 35 U.S.C. §102 (b) over United States Patent No. 6,237,690, issued to Nicholson on May 29, 2001, entitled CONNECTOR ASSEMBLY ("Nicholson").

3. Whether claims 5-6, 17-18, 44-45 and 56-57 are patentable under 35 U.S.C. §103 (a) over Nicholson in view of United States Patent No. 5,890,926, issued to Pauza et al. issued on April 6, 1999, entitled CABLE BEND CONTROLLER (Pauza").

(7) Claim Grouping

Claims 1-4, 13-14, 25-28, 40-43, 52-55, and 64-67 stand together, claims 37-39 and 70-72 stand together and claims 5-6, 17-18, 44-45 and 56-57 stand together. The

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first group contain similar recitations and are rejected under §102(b). The second group contain similar recitations and are rejected under §102(b). The final group are rejected under §103(a).

(8) Argument

(a) Facts

Nicholson discloses a connector that is plainly different from the connector claimed in the claims at issue in the appeal. According to the Specification in Nicholson:

A wellhead assembly is illustrated in FIG. 6. The wellhead assembly comprises a wellhead 100 capping a production casing 102. A spool body 3 is installed upon the wellhead 100 and production tubing 104 is run into the casing 102 until a tubing hanger 5 seats in the spool body 3.

A downhole pump 106 is provided with three phase power from a power cable 108. This cable is split into three single power cores 110, 112 and 114 at a junction box 116. The three single power cores 110, 112 and 114 are connected to the spool body 3 by three connector assemblies 1.

Referring to FIG. 1, a connector assembly 1 is installed in a wellhead installation which includes a radially inner member in the form of a tubing hanger 2 and radially outer members comprising a spool body 3 and a bonnet 4. The connector assembly 1 comprises a first connector part in the form of a plug body 5 and a second connector part in the form of a receptacle 6. The plug body 5 has an outer wall 14. It is supported by a carriage 7 which is longitudinally reciprocable in a guide tube 8. The carriage 7 is shown in its retracted position in which a chamfered front end 9 of the plug body 5 is disposed rearwardly of the tubing hanger 2.

The receptacle 6 of the connector assembly is carried by the tubing hanger with its longitudinal axis tangential to a circle about the central vertical axis of the tubing hanger 2. It is disposed inwardly of the outer periphery of the tubing hanger. It includes an electrical contact pin 10 which at its front end has a contact portion 12 and at its rear is connected to a down hole instrument cable 11. The receptacle 6 has an inner wall 15 terminating at its front end in a chamfered mouth 13. A rear end wall 16 is located at the rear of the receptacle.

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The contact pin 10 is arranged to be received in a contact sleeve (not shown) internally of the plug body 5. (Col. 6, lines 35-67)

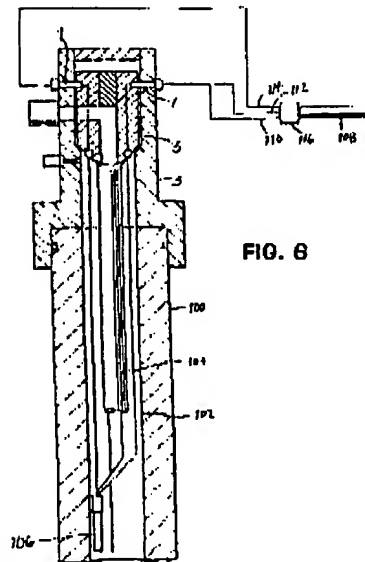


FIG. 6

The Specification in Nicholson also notes in relation to the operation of the connector disclosed in Nicholson as follows:

The operation of the connector assembly will now be described. In order to stroke the plug body 5 forwardly, the actuating mechanism (not showed) is operated and the stem 30 urges the carriage 7 and the plug body 5 forwardly. If there is misalignment between the plug body 5 and the receptacle 6 then this will be corrected as the chamfered front end 9 of the plug body engages in the chamfered mouth 13 of the receptacle 6. The mouth 13 effectively applies an initial lateral force to the front end 9. With further forward movement of the plug body, the engagement between the plug outer wall 14 and the receptacle inner wall 15 brings the respective component parts fully into alignment. The compliant mounting of the plug body on the carriage permits any necessary correction in alignment to take place.

The connector assembly is designed so that the front end 9 of the plug body 5 engages the rear end wall 16 of the receptacle slightly before the carriage 7 completes its forward stroke. The additional forward movement of the carriage

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7 relative to the plug 5 is taken up by compression of the spring 33. (Col. 8, lines 1-20)

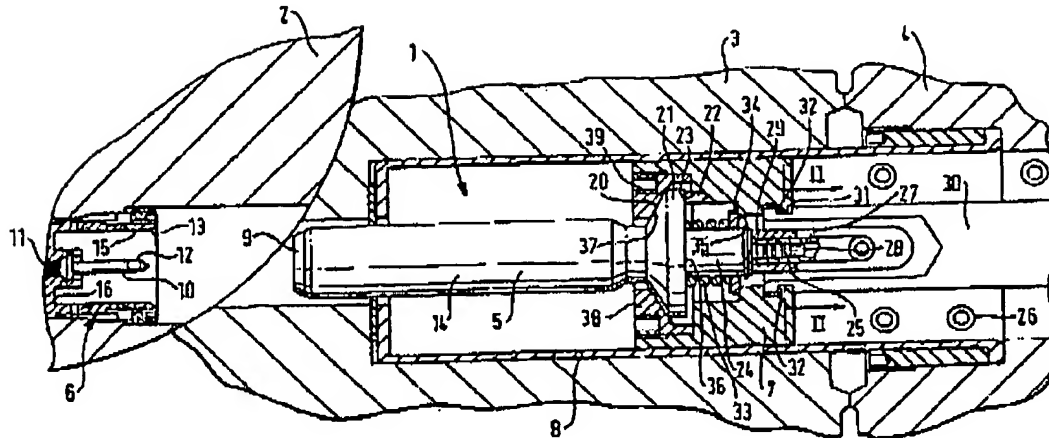


FIG. 1

This connector is clearly not a *push through high voltage connector receptor* within one module, as claimed in the first group of claims noted above, and it does not have a *disconnection mechanism within the one module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made.*

This connector also clearly does not have a *first high voltage connector attached to at least a portion of the cable on one end of the cable and a second high voltage connector attached to at least a portion of the cable at a second end of the cable as is claimed in the second group of claims noted above.* Nor does it have a *retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector.*

According to the Specification of Pauza, that patent discloses:

A cable bend controller (50) comprising a relatively rigid member includes a body section (52) having first and second cable-engaging sections (56,60) at opposing ends thereof. The first and second cable-engaging sections

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(56) are securable to a cable at a first and second spaced apart locations. The said body section (52) is curved about a preselected radius such that said first cable-engaging section (56) is oriented at a substantial angle to said second cable-engaging section, (60) the body section thereby defining an externally arcuate concave cable-engaging surface (54). Upon fastening the first and second cable-engaging sections (56,60) to the cable (42), cable (42) is required to assume a bend to lie along said externally arcuate concave cable-engaging surface (54).
(Abstract)

b) The Examiner's Positions

Claims 1-6, 13-18, 25-30 and 37-39 were rejected under 35 U.S.C. §102 (b) as anticipated by Nicholson.

With regard to claims 1, 13, 25, 40, 52 and 64, the Examiner has taken the position that Nicholson discloses:

an apparatus comprising: a high voltage connector (10) attached to at least a portion of the cable (11) on at least one end of the cable (11); a push through high voltage connector receptor (inside plug body 5, Column 6, 66-67) means within one module (3); and a disconnection (Column 8, Lines 1-8 explain that (30) urges the carriage forwardly therefore it is inherent that (30) can also be used as a disconnection means by moving it rearwardly) mechanism (30) within the one module adapted to move the high voltage connector (10) and the at least a portion of cable (11) to which the high voltage connector is attached through the connector receptor (inside plug body 5; Column 6, 66-67) from a contact position to a housed position in a direction away from the other module (2) to which the high voltage connection is made. See Figs. 1-4 and 6.

With regard to claims 2, 14, 26, 41, 53, and 65, the Examiner has taken the position that Nicholson:

discloses the high voltage connector receptor (inside plug body; Column 6, 66-67) comprising: an open cylinder connector (5) with a contacting surface (column 6, 66-67) contained on the interior wall (Col. 6, 66-67) of the cylindrical connector (5). See Figs. 1-4 and 6.

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With regard to claims 3, 4, 15-16, 27-28, 42-43, 54-55 and 66-67, the Examiner has taken the position that:

Nicholson discloses an interlock mechanism (means) (actuating mechanism, Column 8, Line 3) in operative connection with the disconnection mechanism (30) and adapted to provide an indication of the high voltage connector 10 being in a position other than in the contact position relative to the connector receptor (inside body plug 5; column 6, 66-67). See Figs. 1-4, 6.

With respect to claims 37-39 and 70-72, the Examiner has taken the position that Nicholson shows the above noted features referenced by the Examiner in regard to claims 1, 13, 25, 40, 52 and 64, along with "a second high voltage connector (5) attached to at least a portion of the cable (11) at a second end of the cable (11)" and "a retractable connector means (6) within the second module (2) moveable toward the first module (3) from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector 95). See Figs. 1-4 and 6."

The Examiner has taken the position that Pauza discloses:

a similar connector (70) having an engaging mechanism (66) engaging the cable (42) and holding the cable (42) in a fixed position relative to a disconnection mechanism (12). See Figs. 2-4.

c) Applicable Law

An invention is patentable under 35 U.S.C. §102 unless anticipated by the prior art. Anticipation occurs if " 'a prior art reference ... disclose[s] every limitation of the claimed invention, either explicitly or inherently.' " *Mehl/Biophile International Corp. v. Milgraum*, 192 F.3d 1362, 1365, 52 U.S.P.Q. 2d 1303, 1305 (Fed. Cir. 1999); *General Electric Co. v. Nintendo*, 179 F.3d 1350, 1356, 50 U.S.P.Q. 2d 1910, 1912 (Fed. Cir. 1999) ("anticipation requires that a single prior art reference disclose every limitation in a patent claim."); *Union Oil Co. of California v. Atlantic Richfield Co.*, 208 F.3d 989, 994-95, 54 U.S.P.Q. 2d 1227, 1230-31 (Fed. Cir. 2000) ("a party seeking to invalidate a patent under §102 [must] show that the allegedly invalidating prior art contains 'each and every element of [the] claimed invention.' "); *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (quoted in the USPTO Manual of Patent

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Examining Procedure, "MPEP" §2131); *Verdegual Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (quoted in the MPEP). The Examiner has not asserted inherency, except in a manner not related to finding an element missing from the disclosure of Nicholson that applicants disagree would be inherent. Therefore, no discussion is contained herein of the meaning of inherency.

Whether or not the Examiner has established *prima facie* obviousness allocates the burden of going forward with the evidence during the examination process.¹ Initially the burden of going forward is on the Examiner to establish *prima facie* obviousness otherwise the applicant has no obligation to submit evidence of nonobviousness.² *Prima facie* obviousness is established by a "suggestion or motivation," either in the references themselves or in the ordinary skill of the art, to modify the reference or to combine references, a "reasonable expectation of success," and the combination must teach or suggest all the claim limitations.³

Initially the Examiner must show "some suggestion of the desirability of doing what the inventor has done."⁴ Either "the references must expressly or impliedly suggest the claimed invention" or the Examiner "must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references."⁵ The Examiner is also required to show from the record that the suggestion to combine is in the references and bald statements of obviousness to combine, or that the combination "involves routine skill in the art" cannot stand under *In re Lee*, 277 F.3d 1338, 1345, 61 U.S.P.Q. 2d 1430 (Fed. Cir. 2002) ("deficiencies of the cited references cannot be remedied by the Board's general conclusions about what is "basic knowledge" or "common sense." The Board's findings must extend to all material facts and must be documented on the record, lest the 'haze of

¹ M.P.E.P. §2142. See *In re Rinehart*, 531 F.2d 1048, 189 U.S.P.Q. 143 (C.C.P.A. 1976); *In re Linter*, 458 F.2d 1013, 173 U.S.P.Q. 560 (C.C.P.A. 1972); *In re Saunders*, 444 F.2d 599, 170 U.S.P.Q. 213 (C.C.P.A. 1971); *In re Tiffin*, 443 F.2d 394, 170 U.S.P.Q. 88 (C.C.P.A. 1971), *amended*, 448 F.2d 791, 171 U.S.P.Q. 294 (C.C.P.A. 1971); *In re Warner*, 379 F.2d 1011, 154 U.S.P.Q. 173 (C.C.P.A. 1967), *cert. denied*, 389 U.S. 1057 (1968).

² M.P.E.P. §2142.

³ M.P.E.P. §2142. Such teaching or suggestion and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. M.P.E.P. §2142. See *In re Vaecck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). See M.P.E.P. §§ 2143 - 2143.03 regarding these criteria.

⁴ M.P.E.P. §2142.

⁵ M.P.E.P. §2142. *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). See M.P.E.P. §§2144 - 2144.09 regarding reasoning supporting obviousness rejections.

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so-called expertise' acquire insulation from accountability.") or *In re Thrift*, 298 F.3d 1357, 1362, 63 U.S.P.Q. 2d 2002 (Fed. Cir. 2002) (finding of obviousness as to one claim was proper where references themselves suggested combination but the simple assertion that "[t]he use of grammar is old and well known in the art of speech recognition as a means of optimization which is highly desirable," did not make out a case of *prima facie* obviousness).

Unless the motivation to combine the references is "immediately apparent," The Examiner must explain why the combination is proper.⁶ The prior art must be analogous art. Analogous art must either be in the field of applicant's endeavor or, if not, then reasonably pertinent to the particular problem with which the inventor is concerned.⁷ The art relied upon must be something that "logically would have commended itself to the inventor's attention." *Clay, supra*.

For *prima facie* obviousness all of the claim limitations must be taught or suggested by the prior art.⁸ If an independent claim is nonobvious any claim depending from the independent claim is also nonobvious.⁹

d) Analysis

1) Issue 1

With regard to claims 1, 13, 25, 40, 52 and 64, applicants respectfully submit that Nicholson, and specifically the portion(s) directly cited by the Examiner, does not teach or suggest a "push through high voltage connector" as above described and as claimed. Nicholson discloses an ordinary male-female connector specifically described, as noted above, as having a "rear end wall 16." This prevents the connector of Nicholson from being a "push through" connector as that is described and claimed in the above captioned.

⁶ M.P.E.P. §2142. See *Ex parte Skinner*, 2 U.S.P.Q.2d 1788 (Bd. Pat. App. & Inter. 1986). A rejection including numerous grounds for rejections must explain with "reasonable specificity" at least one rejection, or no *prima facie* obviousness exists. M.P.E.P. §2142. See *Ex parte Blanc*, 13 U.S.P.Q.2d 1383 (Bd. Pat. App. & Inter. 1989) (rejection based on nine references with at least 40 prior art rejections and no explanation of any one rejection with reasonable specificity reversed).

⁷ M.P.E.P. §2141.01 (a), *citing*, *In re Oetiker*, 977 F.2d 1443, 1446, 24 U.S.P.Q. 2d 1443, 1445 (Fed. Cir. 1992), *In re Clay*, 966 F.2d 656, 659, 23 U.S.P.Q.2d 1058, 1060-61 (Fed. Cir. 1992) and *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 U.S.P.Q. 2d 1767 (Fed. Cir. 1993).

⁸ M.P.E.P. §2143.03. See *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974); *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970) (must consider all of the claim language).

⁹ M.P.E.P. §2143.03. See *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

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This is true whether the plug body 5 or the connector receptacle 6 is considered by the Examiner to be a "push through" connector. The connector of Nicholson has none of the advantages noted in the above quoted portion of the Specification of the above captioned application, e.g., with respect to such connectors as applied to closely spaced modules. The rear wall 16 of the connector receptor 6 of Nicholson and the rest of the arrangement of Nicholson prevents the apparatus disclosed in Nicholson, as noted above, being able to function to "move the high voltage connector ... through the connector receptor from a contact position to a housed position." It also prevents doing so in a direction away from the other module" If the plug body 5 is viewed as the "push through" connector, neither does the connector 10 push through the plug body 5, in going from a connected position to a housed position, nor does the connector 10 go from the connected position to a housed position through the plug body (5) or in a direction away from the other module (2).

The apparatus of Nicholson neither moves to a housed position "through the connector receptor" (6) or (5) nor does it move to the housed position from a connected position through the connector receptor in a direction "away from" the adjacent module. Also, as claimed, the connector and "at least a portion of the cable to which it is connected" passes through the receptor to the housed position in a direction away from the other module. At best, the plug body 5 passes into the receptor assembly 6 or the connector 10 passes into the plug body 5, but a portion of the cable passes through neither plug body 5 or receptor 6.

Regarding the construction of Nicholson as specifically set forth by the Examiner, the high voltage connector (10) attached to at least a portion of the cable (11) on at least one end of the cable (11) *does not* interact with a "push through high voltage connector receptor (inside plug body 5, Column 6, 66-67) means within one module (3)" in the manner claimed. *Neither is* the referenced disconnection mechanism (30) within the carriage 8 "adapted to move the high voltage connector (10) and the at least a portion of cable (11) to which the high voltage connector is attached *through the connector receptor* (inside plug body 5; Column 6, 66-67) *from a contact position to a housed position.*" The contact position is when the connector 10 is inside the plug body 5 having moved into that position in one direction and then the housed position (disconnected) is when the

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plug body is moved in the opposite direction, with the connector moving back out to a housed position (disconnected) in the opposite direction. This is a standard male female connector construction and operation. There is no movement of connector 10 "through" the plug body 5 to a housed position from a contact position.

If anything, the high voltage connector (10) of Nicholson is moved from a housed (disconnected) position to a connected position "through" the high voltage connector receptor (5).

Therefore, for at least the reasons noted, Nicholson does not anticipate claims 1, 13, 25 40, 52 or 64.

Applicants do not agree with the Examiner that the recitation "for electrically connecting two closely positioned high voltage modules with little or no bend and without any lopes in an electrical interconnecting coaxial cable" is without patentability consequence, but, due to the above, do not find it necessary to argue otherwise for the purposes of this appeal.

With regard to claims 2, 14, 26, 41, 53 and 65 applicants respectfully submit that Nicholson does not disclose a "open cylinder connector" as disclosed and claimed in the above captioned application, whereby, e.g., the "high voltage connector receptor" comprising such a "open cylinder connector with a contacting surface on the interior wall of the cylindrical connector" allows the high voltage connector to enter the open cylinder and also "push through" the other end of the open cylinder to disconnect the connection. Therefore, claims 2, 14, 26, 41, 53 and 65 are not anticipated by Nicholson. Claims 2, 14, 26, 41, 53 and 65 are also allowable based on *In re Fine*, noted above.

With regard to claims 3, 4, 15-16, 27-28, 42-43, 54-55 and 66-67 applicants respectfully submit that the actuating mechanism, which is not shown in Nicholson, does not perform an interlock function to indicate that the high voltage connector (10) is in a position other than in the contact position, as claimed. Applicants submit that, at best, the actuating mechanism can provide an indication (though Nicholson does not teach or suggest performing this function or how it would be accomplished) of what position the plug body 5 is in with regard to the guide tube 8 and/or the spool body 3. Even with the plug body extended due to the operation of the actuating mechanism referenced by the Examiner, there is and can be no indication one way or the other that a connector (10) is

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or is not in contact with the plug body. The actuator could be actuated to move the plug body 5 when the tubing hanger 2 is nowhere near the spool body 3 and, thus there is an impossibility of connection. Therefore no interlock, as claimed, can be gleaned from the position of the actuator mechanism, not shown in Nicholson. For this reason claims 3, 4, 15-16, 27-28, 42-43, 54-55 and 66-67 are not anticipated by Nicholson. Claims 3, 4, 15-16, 27-28, 42-43, 54-55 and 66-67 also allowable based on *In re Fine*, noted above.

2) Issue 2

With regard to claims 37-39 and 70-72, in addition to the noted differences discussed above, the referenced portions of Nicholson plainly do not constitute a *"first high voltage connector attached to at least a portion of the cable on one end of the cable and a second high voltage connector attached to at least a portion of the cable at a second end of the cable"*. The connector 10 is connected to one end of the cable 11 in Nicholson, but nothing is disclosed about what is on the other end of that cable (11). Also plainly the high voltage connector (5) is not what is connected to the other end of the cable (11), as suggested by the Examiner. If anything, after connection is established between the connector 10 and the plug body 5, they are both connected to the same end of the cable (11).

In addition, Nicholson does not disclose a *"retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector."* The connector receptacle 6 referenced by the Examiner is not "retractable", nor is the connector 10 within it "retractable." Nor is it "moveable toward the first module from a retracted position." If anything, the plug body which the Examiner has referenced as the "push through" connector in the first module 3, is also retractable and extendable from the first module 3 to the second module 2 and therefore, not extendable from the second module toward the first module.

The referenced connector 6 also does not *"extend from a retracted position to an extended position in which extended position the electrical contact is made with the second high voltage connector."* The connector assembly 6 does not move at all with respect to what the Examiner references as the second module (2).

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3) Issue 3

With regard to claims 5-6, 17-18, 44-45, and 56-57 for the above stated reasons, the Examiner has not made out a case of *prima facie* obviousness of these claims over Nicholson in view of Pauza. The failures of Nicholson to disclose the other elements of the claims, as noted above, means that, regardless of what Pauza discloses, all of the elements of claims 5-6, 17-18, 44-45, and 56-57 are not found in the combination of Nicholson and Pauza. The claims are also allowable under *In re Fine* discussed above.

In addition, applicants do not agree that there is any suggestion to combine or that the Examiner has made a showing of a suggestion or motivation to combine the structures referenced in Pauza or that Pauza is even analogous art to a connector of the type disclosed and claimed in the above captioned application and specifically directed to solving the problems that the above noted portions of the specification of the above captioned application address. However, for the above noted reasons at least, the rejection of claims 5-6, 17-18, 44-45, and 56-57 is improper without any need to consider this second prong of the requirements for a *prima facie* case for obviousness.

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Conclusion

For the reasons noted above, the rejections of claims 1-4, 13-14, 25-28, 37-39, 40-43, 52-55, 64-67 and 70-72 are not anticipated by Nicholson under 35 U.S. C. §102(b) and the Examiner should be instructed to withdraw the rejections of claims 1-4, 13-14, 25-28, 37-39, 40-43, 52-55, 64-67 and 70-72.

For the above stated reasons the Examiner's rejection of claims 5-6, 17-18, 44-45, and 56-57 under 35 U.S.C. §103(a) over Nicholson in view of Pauza is not proper and the Examiner should be instructed to withdraw the rejection of claims 5-6, 17-18, 44-45, and 56-57 under 35 U.S.C. §103(a) over Nicholson in view of Pauza.

Respectfully submitted,


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**Appeal Brief Appendix
Claims At Issue**

1. (Original): An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a high voltage connector attached to at least a portion of the cable on at least one end of the cable;

a push through high voltage connector receptor within one module; and,

a disconnection mechanism within the one module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made.

2. (Original): The apparatus of claim 1 further comprising:

the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

3. (Original): The apparatus of claim 1, further comprising:

an interlock mechanism in operative connection with the disconnection mechanism and adapted to provide an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

4. (Original): The apparatus of claim 2, further comprising:

an interlock mechanism in operative connection with the disconnection mechanism and adapted to provide an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

5. (Original): The apparatus of claim 3, further comprising:

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an engaging mechanism engaging the cable and holding the cable in a fixed position relative to the disconnection mechanism as the high voltage connector moves between the contact position and the housed position.

6. (Original): The apparatus of claim 4, further comprising:

an engaging mechanism engaging the cable and holding the cable in a fixed position relative to the disconnection mechanism as the high voltage connector moves between the contact position and the housed position.

7. (Original): The apparatus of claim 1, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the clamping mechanism to prevent the high voltage connector from moving from the contact position.

8. (Original): The apparatus of claim 2, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

9. (Original): The apparatus of claim 3, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

10. (Original): The apparatus of claim 4, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative

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with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

11. (Original): The apparatus of claim 5, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

12. (Original): The apparatus of claim 6, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

13. (Original): An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a high voltage connector attached to at least a portion of the cable on at least one end of the cable;

a push through high voltage connector receptor means within one module for connecting and disconnecting the high voltage connector to the module; and,

a disconnection means within the one module for positioning the high voltage connector and the at least a portion of cable to which the high voltage connector is attached in a housed position by moving the cable in a direction away from the other module to which high voltage connection is to be made.

14. (Original): The apparatus of claim 13 further comprising:

the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

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15. (Original): The apparatus of claim 13, further comprising:
an interlock means for, in cooperation with the disconnection means, providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

16. (Original): The apparatus of claim 14, further comprising:
an interlock means for, in cooperation with the disconnection means, providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

17. (Original): The apparatus of claim 15, further comprising:
an engaging means for engaging the cable and holding the cable in a fixed position relative to the disconnection means as the high voltage connector moves between the contact position and the housed position.

18. (Original): The apparatus of claim 16, further comprising:
an engaging means for engaging the cable and holding the cable in a fixed position relative to the disconnection means as the high voltage connector moves between the contact position and the housed position.

19. (Original): The apparatus of claim 13, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

20. (Original): The apparatus of claim 14, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the

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disconnection means to prevent the high voltage connector from moving from the contact position.

21. (Original): The apparatus of claim 15, further comprising:

a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

22. (Original): The apparatus of claim 16, further comprising:

a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

23. (Original): The apparatus of claim 17, further comprising:

a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

24. (Original): The apparatus of claim 18, further comprising:

a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

25. (Original): A method for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

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attaching a high voltage connector to at least a portion of the cable on at least one end of the cable;

providing a push through high voltage connector receptor within one module for connecting and disconnecting the high voltage connector to the module; and,

positioning the high voltage connector and the at least a portion of cable to which the high voltage connector is attached in a housed position by moving the cable through the push through high voltage connector receptor in a direction away from the other module to which high voltage connection is to be made.

26. (Original): The method of claim 25 further comprising:

the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

27. (Original): The method of claim 25, further comprising:

providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor to prevent energizing the cable when the connector is in other than the contact position.

28. (Original): The method of claim 26, further comprising:

providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor to prevent energizing the cable when the connector is in other than the contact position.

29.-32. (Canceled)

33. (Original): The apparatus of claim 27, further comprising:

clamping the disconnection means to prevent the high voltage connector from moving from the contact position.

34. (Original): The apparatus of claim 28, further comprising:

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clamping the disconnection means to prevent the high voltage connector from moving from the contact position.

35. (Original): The apparatus of claim 29, further comprising:

clamping the disconnection means to prevent the high voltage connector from moving from the contact position.

36. (Original): The apparatus of claim 29, further comprising:

clamping the disconnection means to prevent the high voltage connector from moving from the contact position.

37. (Original): An apparatus for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a first high voltage connector attached to at least a portion of the cable on one end of the cable and a second high voltage connector attached to at least a portion of the cable at a second end of the cable;

a push through high voltage connector receptor within the first module;

a disconnection mechanism within the first module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made; and

a retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector.

38. (Original): An apparatus for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

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a first and a second high voltage connector attached to at least a portion of the cable on each end of the cable;

a push through high voltage connector receptor means within the first module for connecting and disconnecting the high voltage connector to the first module;

a disconnection means within the first module for positioning the high voltage connector and the at least a portion of cable to which the high voltage connector is attached in a housed position by moving the cable in a direction away from the other module to which high voltage connection is to be made; and,

a retractable connector means within the second module moveable toward the first module from a retracted position into an extended position, for making electrical contact with the second high voltage connector.

39. (Original): A method for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

placing a first and a second high voltage connector on at least a portion of the cable on each end of the cable;

a push through high voltage connector receptor means within the first module for connecting and disconnecting the high voltage connector to the first module;

a disconnection means within the first module for positioning the high voltage connector and the at least a portion of cable to which the high voltage connector is attached in a housed position by moving the cable in a direction away from the other module to which high voltage connection is to be made; and,

a retractable connector means within the second module moveable toward the first module from a retracted position into an extended position, for making electrical contact with the second high voltage connector.

40. (Previously presented): An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

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a high voltage connector electrically connected to at least a portion of the cable on at least one end of the cable;

a push through high voltage connector receptor within one module; and,

a disconnection mechanism within the one module adapted to move the high voltage connector through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made.

41. (Previously presented): The apparatus of claim 40 further comprising:

the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

42. (Previously presented): The apparatus of claim 40, further comprising:

an interlock mechanism in operative connection with the disconnection mechanism and adapted to provide an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

43. (Previously presented): The apparatus of claim 41, further comprising:

an interlock mechanism in operative connection with the disconnection mechanism and adapted to provide an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

44. (Previously presented): The apparatus of claim 42, further comprising:

an engaging mechanism engaging the cable and holding the cable in a fixed position relative to the disconnection mechanism as the high voltage connector moves between the contact position and the housed position.

45. (Previously presented): The apparatus of claim 43, further comprising:

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an engaging mechanism engaging the cable and holding the cable in a fixed position relative to the disconnection mechanism as the high voltage connector moves between the contact position and the housed position.

46. (Previously presented): The apparatus of claim 40, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the clamping mechanism to prevent the high voltage connector from moving from the contact position.

47. (Previously presented): The apparatus of claim 41, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

48. (Previously presented): The apparatus of claim 42, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

49. (Previously presented): The apparatus of claim 43, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

50. (Previously presented): The apparatus of claim 44, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative

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with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

51. (Previously presented): The apparatus of claim 45, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

52. (Previously presented): An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a high voltage connector electrically connected to at least a portion of the cable on at least one end of the cable;

a push through high voltage connector receptor means within one module for connecting and disconnecting the high voltage connector to the module; and,

a disconnection means within the one module for positioning the high voltage connector in a housed position by moving the connector through the connector receptor in a direction away from the other module to which high voltage connection is to be made.

53. (Previously presented): The apparatus of claim 52 further comprising:
the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

54. (Previously presented): The apparatus of claim 52, further comprising:
an interlock means for, in cooperation with the disconnection means, providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

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55. (Previously presented): The apparatus of claim 53, further comprising:
an interlock means for, in cooperation with the disconnection means, providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

56. (Previously presented): The apparatus of claim 54, further comprising:
an engaging means for engaging the cable and holding the cable in a fixed position relative to the disconnection means as the high voltage connector moves between the contact position and the housed position.

57. (Previously presented): The apparatus of claim 55, further comprising:
an engaging means for engaging the cable and holding the cable in a fixed position relative to the disconnection means as the high voltage connector moves between the contact position and the housed position.

58. (Previously presented): The apparatus of claim 52, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

59. (Previously presented): The apparatus of claim 53, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

60. (Previously presented): The apparatus of claim 54, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the

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disconnection means to prevent the high voltage connector from moving from the contact position.

61. (Previously presented): The apparatus of claim 55, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

62. (Previously presented): The apparatus of claim 56, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

63. (Previously presented): The apparatus of claim 57, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

64. (Previously presented): A method for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:
attaching a high voltage connector to at least a portion of the cable on at least one end of the cable;
providing a push through high voltage connector receptor within one module for connecting and disconnecting the high voltage connector to the module; and,
positioning the high voltage connector in a housed position by moving the connector through the push through high voltage connector receptor in a direction away from the other module to which high voltage connection is to be made.

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65. (Previously presented): The method of claim 64 further comprising:
the high voltage connector receptor comprising:
an open cylindrical connector with a contacting surface contained on the
interior wall of the cylindrical connector.

66. (Previously presented): The method of claim 64, further comprising:
providing an indication of the high voltage connector being in a position other
than in the contact position relative to the connector receptor to prevent energizing the
cable when the connector is in other than the contact position.

67. (Previously presented): The method of claim 65, further comprising:
providing an indication of the high voltage connector being in a position other
than in the contact position relative to the connector receptor to prevent energizing the
cable when the connector is in other than the contact position.

68. (Previously presented): The apparatus of claim 66, further comprising:
clamping the disconnection means to prevent the high voltage connector from
moving from the contact position.

69 (Previously presented): The apparatus of claim 67, further comprising:
clamping the disconnection means to prevent the high voltage connector from
moving from the contact position.

70. (Previously presented): An apparatus for electrically connecting a first and a
second closely positioned high voltage module with little or no bend and without any
loops in an electrical interconnecting coaxial cable, comprising:

a first high voltage connector electrically connected to at least a portion of the
cable on one end of the cable and a second high voltage connector electrically connected
to at least a portion of the cable at a second end of the cable;

a push through high voltage connector receptor within the first module;

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a disconnection mechanism within the first module adapted to move the high voltage connector through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made; and

a retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector.

71 (Previously presented): An apparatus for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a first and a second high voltage connector electrically connected to at least a portion of the cable on each end of the cable;

a push through high voltage connector receptor means within the first module for connecting and disconnecting the high voltage connector to the first module;

a disconnection means within the first module for positioning the high voltage connector in a housed position by moving the cable in a direction away from the other module to which high voltage connection is to be made; and,

a retractable connector means within the second module moveable toward the first module from a retracted position into an extended position, for making electrical contact with the second high voltage connector.

72. (Previously presented): A method for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

electrically connecting a first and a second high voltage connector to at least a portion of the cable on each end of the cable;

providing a push through high voltage connector receptor within the first module for connecting and disconnecting the high voltage connector to the first module;

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disconnecting the high voltage connector within the first module by positioning the high voltage connector in a housed position by moving the connector in a direction away from the other module to which high voltage connection is to be made; and,
providing a retractable connector within the second module moveable toward the first module from a retracted position into an extended position and making electrical contact with the second high voltage connector in the extended position.

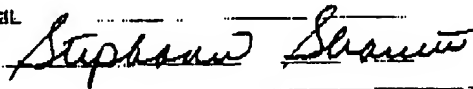
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Stephanie Sharrett
(Name)

(Signature)



In re Application of:

Robert B. Saethre et al.

Serial No.: 10/606,412

Filing Date: June 25, 2003

Title: METHOD AND APPARATUS FOR
ELECTRONICALLY
INTERCONNECTING HIGH VOLTAGE
MODULES POSITIONED IN
RELATIVELY CLOSE PROXIMITY

Examiner: Edwin A. Leon

Group Art Unit: 2833

Conf. No.: 5670

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450EVIDENCE APPENDIX

None

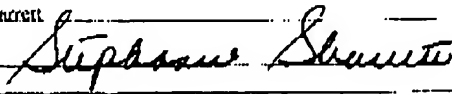
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Stephanie Shurett
(Name)

(Signature)



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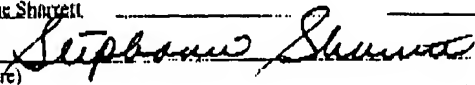
Group Art Unit: 2833

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P.O. Box 1450
Alexandria, VA 22313-1450RELATED PROCEEDINGS APPENDIX

None

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| Stephanie Shurell (Name) |  |
| (Signature) | |

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

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Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPLICANT'S APPEAL BRIEF

In response to the Office Action mailed October 27, 2005, Applicants submit the following amendments and remarks.

Applicants filed a Notice of Appeal in the above captioned application on April 18, 2005, responsive to a second Office Action dated February 10, 2005, which is not Final. Applicants hereby present Applicants' Appeal Brief, in triplicate.

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(1) Real Party In Interest

The real party in interest in the above captioned application is Cymer, Inc. a corporation of the state of Nevada and the assignee of the above captioned application from the applicant named inventors.

(2) Related Appeals and Interferences

There are no related appeals or interferences.

(3) Status of the Claims

Claims 1-28 and 33-72 remain in the above captioned application. Claims 1-6, 13, 14, 17, 18, 25-28, 37-45, 52-57, 64-67, and 70-72 stand rejected and claims 7-12, 19-24, 33-36, 46-51, 58-63, 68, and 69 are deemed allowable in the above referenced Office Action. Claims 29-32 were cancelled in a Response dated November 15, 2004 to an Office Action dated October 20, 2004. Claims 40-72 were added by that same Response. The Claims on appeal are claims 1-6, 13, 14, 17, 18, 25-28, 37-45, 52-57, 64-67, and 70-72.

(4) Status of Amendments

There are no outstanding amendments to the above captioned application.

(5) Statement of the Invention

As the Specification in the above captioned application notes, the present invention relates to:

high pulse powered electrical equipment and other high voltage electrical equipment which is segregated into modules which in turn are positioned relatively close to each other, e.g., in a cabinet, e.g., housing other equipment, e.g., the optics, laser chambers and associated other equipment for a very high power very high pulse rate excimer laser. (p. 1, lines 14-18)

The Specification goes on to note:

[1]interconnection of modules with high voltage [must be] over a relatively robust and therefore also relatively inflexible high voltage cable In certain applications, e.g., generation of very finely tuned very short wavelength and

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narrow band width light for applications, e.g., semiconductor manufacturing lithography applications, interconnecting cables with unwanted loops or even perhaps bending of the cabling can cause undesired electrical effects, e.g., unwanted and/or misplaced inductances. For both ease of installation and ease of removal for maintenance of [sic, or] for interchange there is a need for the ability to interconnect such modules with such relatively inflexible cabling without significantly bending, twisting, crimping, looping or the like of the cabling, which can cause the above mentioned ill effects or perhaps also damage component parts within the modules during an installation or removal process.

Independent claims 1, 13, 25, 40, 52 and 64 all generally recite as an apparatus, an apparatus in means plus function language or a method:

1. An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a high voltage connector attached to at least a portion of the cable on at least one end of the cable;

a push through high voltage connector receptor within one module; and,

a disconnection mechanism within the one module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made. (emphasis added)

The Specification describes the operation of the claimed invention, including the "push through high voltage connector" as follows:

Turning now to Fig.'s 1 and 2 there is shown a high voltage pulse power module 20 ... [including] a high voltage input connector assembly 30, which may include, e.g., a high voltage connector 32 and a high voltage connector receptor 34. (p. 4, lines 13-15)

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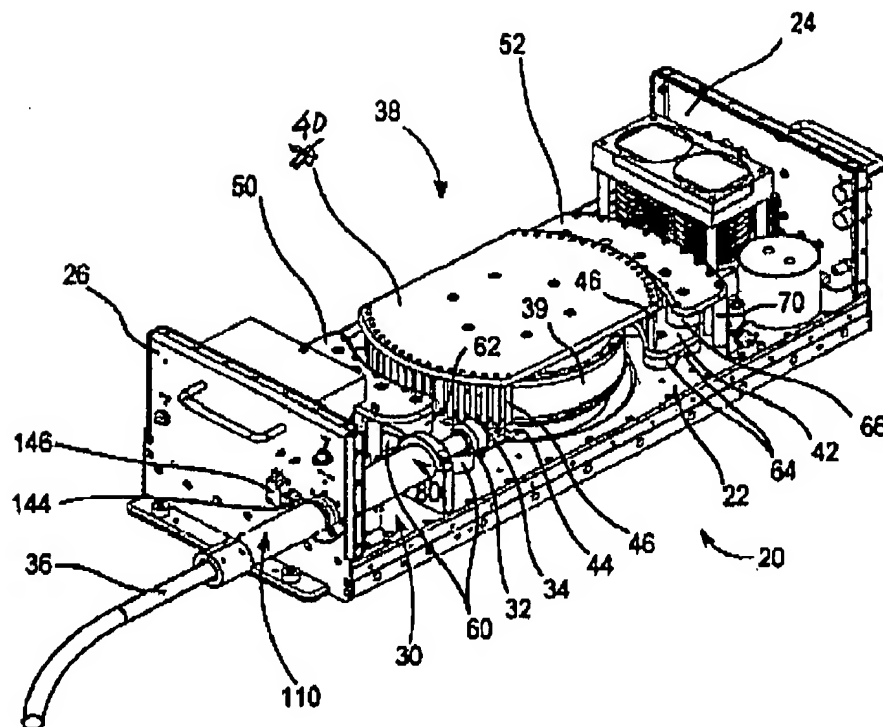


FIG. 1

The Specification of the above captioned application further goes on to note in regard to the construction and function of the inventions disclosed and claimed:

Turning now to Fig. 3 there is shown the module of Fig.'s 1 and 2 partially cut away and in cross section along the section lines 3,4 - 3,4 in Fig. 2. ... (p. 5, lines 15-16)

When the module 20 is first to be installed and/or the operator desires to remove the module, the cable 36 and the high voltage connector assembly 30 will be in the position/or moved into the position shown in Fig. 4. In this position the *high voltage connector 32 has been thrust through the opening 178 in the high voltage connector receptor [34] toward the rear wall 24 of the module 20.* ... This micro-switch also may be utilized to give an indication that the annular groove 130 has passed by the micro-switch 160 toward the rear wall 24 of the module 20 and in the opposite direction during an engaging step in which the high

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voltage connector 32 is brought into electrically engaging contact with the high voltage connector receptor 34. ...

During such an engaging step, after the module 20 has been inserted or re-inserted, the inner tube 110 may be withdrawn through the base tube 80 in which it is snugly fit and frictionally engaging, but still slideably engaging the base tube, to a position where the clamp 140 [shown in FIG. 3] again is in engagement with the annular groove 130 and the high voltage connector in turn is within the opening 178 of the high voltage connector receptor 32.

... The connector 32 and connector receptor 34, therefore, form a "push-through" high voltage connector, i.e., the connector 32 and the cable 37 to which it is attached, including at least that part of the cable forming the high voltage connection wire 37 and a surrounding insulation cladding, *moves through the connector receptor from a contact position to a housed position in a direction away from the neighboring module to which high voltage connection is desired ...* (p. 7, line 19 – p. 8, line 26)

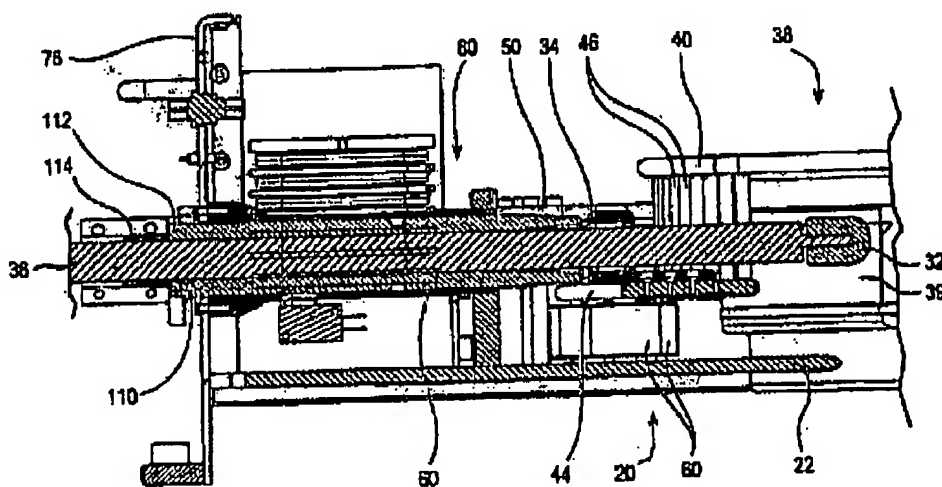


FIG. 4

Claims 37-39 and claims 70-72 generally recite, as an apparatus, as an apparatus in means plus function language and a method as follows:

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37. An apparatus for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a first high voltage connector attached to at least a portion of the cable on one end of the cable and a second high voltage connector attached to at least a portion of the cable at a second end of the cable;

a push through high voltage connector receptor within the first module;

a disconnection mechanism within the first module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made; and

a retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector.

(6) Issues

1. Whether claims 1-4, 13-14, 25-28, 40-43, 52-55, and 64-67 are patentable under 35 U.S.C. §102 (b) over United States Patent No. 6,237,690, issued to Nicholson on May 29, 2001, entitled CONNECTOR ASSEMBLY ("Nicholson").

2. Whether claims 37-39 and 70-72 are patentable under 35 U.S.C. §102 (b) over United States Patent No. 6,237,690, issued to Nicholson on May 29, 2001, entitled CONNECTOR ASSEMBLY ("Nicholson").

3. Whether claims 5-6, 17-18, 44-45 and 56-57 are patentable under 35 U.S.C. §103 (a) over Nicholson in view of United States Patent No. 5,890,926, issued to Pauza et al. issued on April 6, 1999, entitled CABLE BEND CONTROLLER (Pauza").

(7) Claim Grouping

Claims 1-4, 13-14, 25-28, 40-43, 52-55, and 64-67 stand together, claims 37-39 and 70-72 stand together and claims 5-6, 17-18, 44-45 and 56-57 stand together. The

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first group contain similar recitations and are rejected under §102(b). The second group contain similar recitations and are rejected under §102(b). The final group are rejected under §103(a).

(8) Argument

(a) Facts

Nicholson discloses a connector that is plainly different from the connector claimed in the claims at issue in the appeal. According to the Specification in Nicholson: A wellhead assembly is illustrated in FIG. 6. The wellhead assembly comprises a wellhead 100 capping a production casing 102. A spool body 3 is installed upon the wellhead 100 and production tubing 104 is run into the casing 102 until a tubing hanger 5 seats in the spool body 3.

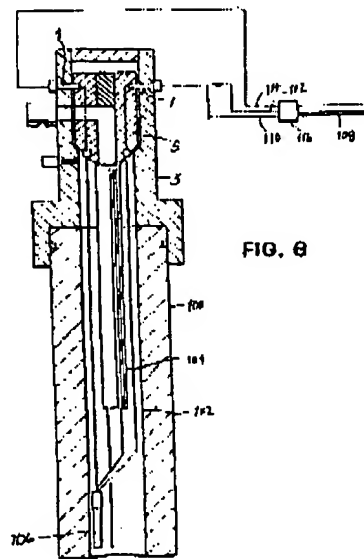
A downhole pump 106 is provided with three phase power from a power cable 108. This cable is split into three single power cores 110, 112 and 114 at a junction box 116. The three single power cores 110, 112 and 114 are connected to the spool body 3 by three connector assemblies 1.

Referring to FIG. 1, a connector assembly 1 is installed in a wellhead installation which includes a radially inner member in the form of a tubing hanger 2 and radially outer members comprising a spool body 3 and a bonnet 4. The connector assembly 1 comprises a first connector part in the form of a plug body 5 and a second connector part in the form of a receptacle 6. The plug body 5 has an outer wall 14. It is supported by a carriage 7 which is longitudinally reciprocable in a guide tube 8. The carriage 7 is shown in its retracted position in which a chamfered front end 9 of the plug body 5 is disposed rearwardly of the tubing hanger 2.

The receptacle 6 of the connector assembly is carried by the tubing hanger with its longitudinal axis tangential to a circle about the central vertical axis of the tubing hanger 2. It is disposed inwardly of the outer periphery of the tubing hanger. It includes an electrical contact pin 10 which at its front end has a contact portion 12 and at its rear is connected to a down hole instrument cable 11. The receptacle 6 has an inner wall 15 terminating at its front end in a chamfered mouth 13. A rear end wall 16 is located at the rear of the receptacle.

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The contact pin 10 is arranged to be received in a contact sleeve (not shown) internally of the plug body 5. (Col. 6, lines 35-67)



The Specification in Nicholson also notes in relation to the operation of the connector disclosed in Nicholson as follows:

The operation of the connector assembly will now be described. In order to stroke the plug body 5 forwardly, the actuating mechanism (not showed) is operated and the stem 30 urges the carriage 7 and the plug body 5 forwardly. If there is misalignment between the plug body 5 and the receptacle 6 then this will be corrected as the chamfered front end 9 of the plug body engages in the chamfered mouth 13 of the receptacle 6. The mouth 13 effectively applies an initial lateral force to the front end 9. With further forward movement of the plug body, the engagement between the plug outer wall 14 and the receptacle inner wall 15 brings the respective component parts fully into alignment. The compliant mounting of the plug body on the carriage permits any necessary correction in alignment to take place.

The connector assembly is designed so that the front end 9 of the plug body 5 engages the rear end wall 16 of the receptacle slightly before the carriage 7 completes its forward stroke. The additional forward movement of the carriage

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7 relative to the plug 5 is taken up by compression of the spring 33. (Col. 8, lines 1-20)

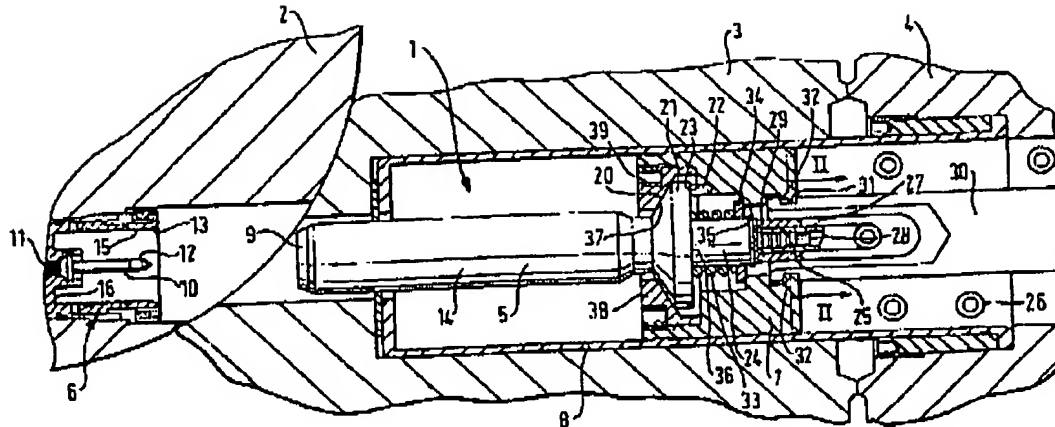


FIG. 1

This connector is clearly not a *push through high voltage connector receptor* within one module, as claimed in the first group of claims noted above, and it does not have a *disconnection mechanism within the one module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made.*

This connector also clearly does not have a *first high voltage connector attached to at least a portion of the cable on one end of the cable and a second high voltage connector attached to at least a portion of the cable at a second end of the cable as is claimed in the second group of claims noted above.* Nor does it have a *retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector.*

According to the Specification of Pauza, that patent discloses:

A cable bend controller (50) comprising a relatively rigid member includes a body section (52) having first and second cable-engaging sections (56,60) at opposing ends thereof. The first and second cable-engaging sections

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(56) are securable to a cable at a first and second spaced apart locations. The said body section (52) is curved about a preselected radius such that said first cable-engaging section (56) is oriented at a substantial angle to said second cable-engaging section, (60) the body section thereby defining an externally arcuate concave cable-engaging surface (54). Upon fastening the first and second cable-engaging sections (56,60) to the cable (42), cable (42) is required to assume a bend to lie along said externally arcuate concave cable-engaging surface (54).
(Abstract)

b) The Examiner's Positions

Claims 1-6, 13-18, 25-30 and 37-39 were rejected under 35 U.S.C. §102 (b) as anticipated by Nicholson.

With regard to claims 1, 13, 25, 40, 52 and 64, the Examiner has taken the position that Nicholson discloses:

an apparatus comprising: a high voltage connector (10) attached to at least a portion of the cable (11) on at least one end of the cable (11); a push through high voltage connector receptor (inside plug body 5, Column 6, 66-67) means within one module (3); and a disconnection (Column 8, Lines 1-8 explain that (30) urges the carriage forwardly therefore it is inherent that (30) can also be used as a disconnection means by moving it rearwardly) mechanism (30) within the one module adapted to move the high voltage connector (10) and the at least a portion of cable (11) to which the high voltage connector is attached through the connector receptor (inside plug body 5; Column 6, 66-67) from a contact position to a housed position in a direction away from the other module (2) to which the high voltage connection is made. See Figs. 1-4 and 6.

With regard to claims 2, 14, 26, 41, 53, and 65, the Examiner has taken the position that Nicholson:

discloses the high voltage connector receptor (inside plug body; Column 6, 66-67) comprising: an open cylinder connector (5) with a contacting surface (column 6, 66-67) contained on the interior wall (Col. 6, 66-67) of the cylindrical connector (5). See Figs. 1-4 and 6.

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With regard to claims 3, 4, 15-16, 27-28, 42-43, 54-55 and 66-67, the Examiner has taken the position that:

Nicholson discloses an interlock mechanism (means) (actuating mechanism, Column 8, Line 3) in operative connection with the disconnection mechanism (30) and adapted to provide an indication of the high voltage connector 10 being in a position other than in the contact position relative to the connector receptor (inside body plug 5; column 6, 66-67). See Figs. 1-4, 6.

With respect to claims 37-39 and 70-72, the Examiner has taken the position that Nicholson shows the above noted features referenced by the Examiner in regard to claims 1, 13, 25, 40, 52 and 64, along with "a second high voltage connector (5) attached to at least a portion of the cable (11) at a second end of the cable (11)" and "a retractable connector means (6) within the second module (2) moveable toward the first module (3) from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector 95). See Figs. 1-4 and 6."

The Examiner has taken the position that Pauza discloses:

a similar connector (70) having an engaging mechanism (66) engaging the cable (42) and holding the cable (42) in a fixed position relative to a disconnection mechanism (12). See Figs. 2-4.

c) Applicable Law

An invention is patentable under 35 U.S.C. §102 unless anticipated by the prior art. Anticipation occurs if " 'a prior art reference ... disclose[s] every limitation of the claimed invention, either explicitly or inherently.' " *Mehl/Biophile International Corp. v. Milgraum*, 192 F.3d 1362, 1365, 52 U.S.P.Q. 2d 1303, 1305 (Fed. Cir. 1999); *General Electric Co. v. Nintendo*, 179 F.3d 1350, 1356, 50 U.S.P.Q. 2d 1910, 1912 (Fed. Cir. 1999) ("anticipation requires that a single prior art reference disclose every limitation in a patent claim."); *Union Oil Co. of California v. Atlantic Richfield Co.*, 208 F.3d 989, 994-95, 54 U.S.P.Q. 2d 1227, 1230-31 (Fed. Cir. 2000) ("a party seeking to invalidate a patent under §102 [must] show that the allegedly invalidating prior art contains 'each and every element of [the] claimed invention.' "); *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (quoted in the USPTO Manual of Patent

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Examining Procedure, "MPEP" §2131); *Verdegaul Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (quoted in the MPEP). The Examiner has not asserted inherency, except in a manner not related to finding an element missing from the disclosure of Nicholson that applicants disagree would be inherent. Therefore, no discussion is contained herein of the meaning of inherency.

Whether or not the Examiner has established *prima facie* obviousness allocates the burden of going forward with the evidence during the examination process.¹ Initially the burden of going forward is on the Examiner to establish *prima facie* obviousness otherwise the applicant has no obligation to submit evidence of nonobviousness.² *Prima facie* obviousness is established by a "suggestion or motivation," either in the references themselves or in the ordinary skill of the art, to modify the reference or to combine references, a "reasonable expectation of success," and the combination must teach or suggest all the claim limitations.³

Initially the Examiner must show "some suggestion of the desirability of doing what the inventor has done."⁴ Either "the references must expressly or impliedly suggest the claimed invention" or the Examiner "must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references."⁵ The Examiner is also required to show from the record that the suggestion to combine is in the references and bald statements of obviousness to combine, or that the combination "involves routine skill in the art" cannot stand under *In re Lee*, 277 F.3d 1338, 1345, 61 U.S.P.Q. 2d 1430 (Fed. Cir. 2002) ("deficiencies of the cited references cannot be remedied by the Board's general conclusions about what is "basic knowledge" or "common sense." ' The Board's findings must extend to all material facts and must be documented on the record, lest the 'haze of

¹ M.P.E.P. §2142. See *In re Rinehart*, 531 F.2d 1048, 189 U.S.P.Q. 143 (C.C.P.A. 1976); *In re Linter*, 458 F.2d 1013, 173 U.S.P.Q. 560 (C.C.P.A. 1972); *In re Saunders*, 444 F.2d 599, 170 U.S.P.Q. 213 (C.C.P.A. 1971); *In re Tiffin*, 443 F.2d 394, 170 U.S.P.Q. 88 (C.C.P.A. 1971), amended, 448 F.2d 791, 171 U.S.P.Q. 294 (C.C.P.A. 1971); *In re Warner*, 379 F.2d 1011, 154 U.S.P.Q. 173 (C.C.P.A. 1967), cert. denied, 389 U.S. 1057 (1968).

² M.P.E.P. §2142.

³ M.P.E.P. §2142. Such teaching or suggestion and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. M.P.E.P. §2142. See *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). See M.P.E.P. §§ 2143 - 2143.03 regarding these criteria.

⁴ M.P.E.P. §2142.

⁵ M.P.E.P. §2142. *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). See M.P.E.P. §§2144 - 2144.09 regarding reasoning supporting obviousness rejections.

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so-called expertise' acquire insulation from accountability.") or *In re Thrift*, 298 F.3d 1357, 1362, 63 U.S.P.Q. 2d 2002 (Fed. Cir. 2002) (finding of obviousness as to one claim was proper where references themselves suggested combination but the simple assertion that "[t]he use of grammar is old and well known in the art of speech recognition as a means of optimization which is highly desirable," did not make out a case of *prima facie* obviousness).

Unless the motivation to combine the references is "immediately apparent," The Examiner must explain why the combination is proper.⁶ The prior art must be analogous art. Analogous art must either be in the field of applicant's endeavor or, if not, then reasonably pertinent to the particular problem with which the inventor is concerned.⁷ The art relied upon must be something that "logically would have commended itself to the inventor's attention." *Clay, supra*.

For *prima facie* obviousness all of the claim limitations must be taught or suggested by the prior art.⁸ If an independent claim is nonobvious any claim depending from the independent claim is also nonobvious.⁹

d) Analysis

1) Issue 1

With regard to claims 1, 13, 25, 40, 52 and 64, applicants respectfully submit that Nicholson, and specifically the portion(s) directly cited by the Examiner, does not teach or suggest a "push through high voltage connector" as above described and as claimed. Nicholson discloses an ordinary male-female connector specifically described, as noted above, as having a "rear end wall 16." This prevents the connector of Nicholson from being a "push through" connector as that is described and claimed in the above captioned.

⁶ M.P.E.P. §2142. See *Ex parte Skinner*, 2 U.S.P.Q.2d 1788 (Bd. Pat. App. & Inter. 1986). A rejection including numerous grounds for rejections must explain with "reasonable specificity" at least one rejection, or no *prima facie* obviousness exists. M.P.E.P. §2142. See *Ex parte Blanc*, 13 U.S.P.Q.2d 1383 (Bd. Pat. App. & Inter. 1989) (rejection based on nine references with at least 40 prior art rejections and no explanation of any one rejection with reasonable specificity reversed).

⁷ M.P.E.P. §2141.01 (a), *citing*, *In re Outiker*, 977 F.2d 1443, 1446, 24 U.S.P.Q. 2d 1443, 1445 (Fed. Cir. 1992), *In re Clay*, 966 F.2d 656, 659, 23 U.S.P.Q.2d 1058, 1060-61 (Fed. Cir. 1992) and *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 U.S.P.Q. 2d 1767 (Fed. Cir. 1993).

⁸ M.P.E.P. §2143.03. See *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974); *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970) (must consider all of the claim language).

⁹ M.P.E.P. §2143.03. See *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

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This is true whether the plug body 5 or the connector receptacle 6 is considered by the Examiner to be a "push through" connector. The connector of Nicholson has none of the advantages noted in the above quoted portion of the Specification of the above captioned application, e.g., with respect to such connectors as applied to closely spaced modules. The rear wall 16 of the connector receptor 6 of Nicholson and the rest of the arrangement of Nicholson prevents the apparatus disclosed in Nicholson, as noted above, being able to function to "move the high voltage connector ... through the connector receptor from a contact position to a housed position." It also prevents doing so in a direction away from the other module" If the plug body 5 is viewed as the "push through" connector, neither does the connector 10 push through the plug body 5, in going from a connected position to a housed position, nor does the connector 10 go from the connected position to a housed position through the plug body (5) or in a direction away from the other module (2).

The apparatus of Nicholson neither moves to a housed position "through the connector receptor" (6) or (5) nor does it move to the housed position from a connected position through the connector receptor in a direction "away from" the adjacent module. Also, as claimed, the connector and "at least a portion of the cable to which it is connected" passes through the receptor to the housed position in a direction away from the other module. At best, the plug body 5 passes into the receptor assembly 6 or the connector 10 passes into the plug body 5, but a portion of the cable passes through neither plug body 5 or receptor 6.

Regarding the construction of Nicholson as specifically set forth by the Examiner, the high voltage connector (10) attached to at least a portion of the cable (11) on at least one end of the cable (11) *does not* interact with a "push through high voltage connector receptor (inside plug body 5, Column 6, 66-67) means within one module (3)" in the manner claimed. *Neither is* the referenced disconnection mechanism (30) within the carriage 8 "adapted to move the high voltage connector (10) and the at least a portion of cable (11) to which the high voltage connector is attached *through the connector receptor* (inside plug body 5; Column 6, 66-67) *from a contact position to a housed position.*" The contact position is when the connector 10 is inside the plug body 5 having moved into that position in one direction and then the housed position (disconnected) is when the

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plug body is moved in the opposite direction, with the connector moving back out to a housed position (disconnected) in the opposite direction. This is a standard male female connector construction and operation. There is no movement of connector 10 "through" the plug body 5 to a housed position from a contact position.

If anything, the high voltage connector (10) of Nicholson is moved from a housed (disconnected) position to a connected position "through" the high voltage connector receptor (5).

Therefore, for at least the reasons noted, Nicholson does not anticipate claims 1, 13, 25 40, 52 or 64.

Applicants do not agree with the Examiner that the recitation "for electrically connecting two closely positioned high voltage modules with little or no bend and without any lopes in an electrical interconnecting coaxial cable" is without patentability consequence, but, due to the above, do not find it necessary to argue otherwise for the purposes of this appeal.

With regard to claims 2, 14, 26, 41, 53 and 65 applicants respectfully submit that Nicholson does not disclose a "open cylinder connector" as disclosed and claimed in the above captioned application, whereby, e.g., the "high voltage connector receptor" comprising such a "open cylinder connector with a contacting surface on the interior wall of the cylindrical connector" allows the high voltage connector to enter the open cylinder and also "push through" the other end of the open cylinder to disconnect the connection. Therefore, claims 2, 14, 26, 41, 53 and 65 are not anticipated by Nicholson. Claims 2, 14, 26, 41, 53 and 65 are also allowable based on *In re Fine*, noted above.

With regard to claims 3, 4, 15-16, 27-28, 42-43, 54-55 and 66-67 applicants respectfully submit that the actuating mechanism, which is not shown in Nicholson, does not perform an interlock function to indicate that the high voltage connector (10) is in a position other than in the contact position, as claimed. Applicants submit that, at best, the actuating mechanism can provide an indication (though Nicholson does not teach or suggest performing this function or how it would be accomplished) of what position the plug body 5 is in with regard to the guide tube 8 and/or the spool body 3. Even with the plug body extended due to the operation of the actuating mechanism referenced by the Examiner, there is and can be no indication one way or the other that a connector (10) is

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or is not in contact with the plug body. The actuator could be actuated to move the plug body 5 when the tubing hanger 2 is nowhere near the spool body 3 and, thus there is an impossibility of connection. Therefore no interlock, as claimed, can be gleaned from the position of the actuator mechanism, not shown in Nicholson. For this reason claims 3, 4, 15-16, 27-28, 42-43, 54-55 and 66-67 are not anticipated by Nicholson. Claims 3, 4, 15-16, 27-28, 42-43, 54-55 and 66-67 also allowable based on *In re Fine*, noted above.

2) Issue 2

With regard to claims 37-39 and 70-72, in addition to the noted differences discussed above, the referenced portions of Nicholson plainly do not constitute a *"first high voltage connector attached to at least a portion of the cable on one end of the cable and a second high voltage connector attached to at least a portion of the cable at a second end of the cable"*. The connector 10 is connected to one end of the cable 11 in Nicholson, but nothing is disclosed about what is on the other end of that cable (11). Also plainly the high voltage connector (5) is not what is connected to the other end of the cable (11), as suggested by the Examiner. If anything, after connection is established between the connector 10 and the plug body 5, they are both connected to the same end of the cable (11).

In addition, Nicholson does not disclose a *"retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector."* The connector receptacle 6 referenced by the Examiner is not "retractable", nor is the connector 10 within it "retractable." Nor is it "moveable toward the first module from a retracted position." If anything, the plug body which the Examiner has referenced as the "push through" connector in the first module 3, is also retractable and extendable from the first module 3 to the second module 2 and therefore, not extendable from the second module toward the first module.

The referenced connector 6 also does not *"extend from a retracted position to an extended position in which extended position the electrical contact is made with the second high voltage connector."* The connector assembly 6 does not move at all with respect to what the Examiner references as the second module (2).

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3) Issue 3

With regard to claims 5-6, 17-18, 44-45, and 56-57 for the above stated reasons, the Examiner has not made out a case of *prima facie* obviousness of these claims over Nicholson in view of Pauza. The failures of Nicholson to disclose the other elements of the claims, as noted above, means that, regardless of what Pauza discloses, all of the elements of claims 5-6, 17-18, 44-45, and 56-57 are not found in the combination of Nicholson and Pauza. The claims are also allowable under *In re Fine* discussed above.

In addition, applicants do not agree that there is any suggestion to combine or that the Examiner has made a showing of a suggestion or motivation to combine the structures referenced in Pauza or that Pauza is even analogous art to a connector of the type disclosed and claimed in the above captioned application and specifically directed to solving the problems that the above noted portions of the specification of the above captioned application address. However, for the above noted reasons at least, the rejection of claims 5-6, 17-18, 44-45, and 56-57 is improper without any need to consider this second prong of the requirements for a *prima facie* case for obviousness.

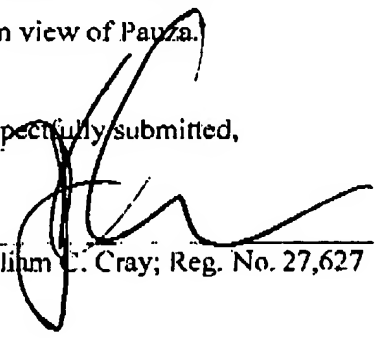
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Conclusion

For the reasons noted above, the rejections of claims 1-4, 13-14, 25-28, 37-39, 40-43, 52-55, 64-67 and 70-72 are not anticipated by Nicholson under 35 U.S. C. §102(b) and the Examiner should be instructed to withdraw the rejections of claims 1-4, 13-14, 25-28, 37-39, 40-43, 52-55, 64-67 and 70-72.

For the above stated reasons the Examiner's rejection of claims 5-6, 17-18, 44-45, and 56-57 under 35 U.S.C. §103(a) over Nicholson in view of Pauza is not proper and the Examiner should be instructed to withdraw the rejection of claims 5-6, 17-18, 44-45, and 56-57 under 35 U.S.C. §103(a) over Nicholson in view of Pauza.

Respectfully submitted,


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**Appeal Brief Appendix
Claims At Issue**

1. (Original): An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:
 - a high voltage connector attached to at least a portion of the cable on at least one end of the cable;
 - a push through high voltage connector receptor within one module; and,
 - a disconnection mechanism within the one module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made.
2. (Original): The apparatus of claim 1 further comprising:
 - the high voltage connector receptor comprising:
 - an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.
3. (Original): The apparatus of claim 1, further comprising:
 - an interlock mechanism in operative connection with the disconnection mechanism and adapted to provide an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.
4. (Original): The apparatus of claim 2, further comprising:
 - an interlock mechanism in operative connection with the disconnection mechanism and adapted to provide an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.
5. (Original): The apparatus of claim 3, further comprising:

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an engaging mechanism engaging the cable and holding the cable in a fixed position relative to the disconnection mechanism as the high voltage connector moves between the contact position and the housed position.

6. (Original): The apparatus of claim 4, further comprising:

an engaging mechanism engaging the cable and holding the cable in a fixed position relative to the disconnection mechanism as the high voltage connector moves between the contact position and the housed position.

7. (Original): The apparatus of claim 1, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the clamping mechanism to prevent the high voltage connector from moving from the contact position.

8. (Original): The apparatus of claim 2, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

9. (Original): The apparatus of claim 3, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

10. (Original): The apparatus of claim 4, further comprising:

a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative

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with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

11. (Original): The apparatus of claim 5, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

12. (Original): The apparatus of claim 6, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

13. (Original): An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a high voltage connector attached to at least a portion of the cable on at least one end of the cable;

a push through high voltage connector receptor means within one module for connecting and disconnecting the high voltage connector to the module; and,

a disconnection means within the one module for positioning the high voltage connector and the at least a portion of cable to which the high voltage connector is attached in a housed position by moving the cable in a direction away from the other module to which high voltage connection is to be made.

14. (Original): The apparatus of claim 13 further comprising:

the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

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15. (Original): The apparatus of claim 13, further comprising:
an interlock means for, in cooperation with the disconnection means, providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

16. (Original): The apparatus of claim 14, further comprising:
an interlock means for, in cooperation with the disconnection means, providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

17. (Original): The apparatus of claim 15, further comprising:
an engaging means for engaging the cable and holding the cable in a fixed position relative to the disconnection means as the high voltage connector moves between the contact position and the housed position.

18. (Original): The apparatus of claim 16, further comprising:
an engaging means for engaging the cable and holding the cable in a fixed position relative to the disconnection means as the high voltage connector moves between the contact position and the housed position.

19. (Original): The apparatus of claim 13, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

20. (Original): The apparatus of claim 14, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the

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disconnection means to prevent the high voltage connector from moving from the contact position.

21. (Original): The apparatus of claim 15, further comprising:

a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

22. (Original): The apparatus of claim 16, further comprising:

a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

23. (Original): The apparatus of claim 17, further comprising:

a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

24. (Original): The apparatus of claim 18, further comprising:

a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

25. (Original): A method for electrically connecting two closely positioned high

voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

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attaching a high voltage connector to at least a portion of the cable on at least one end of the cable;

providing a push through high voltage connector receptor within one module for connecting and disconnecting the high voltage connector to the module; and,

positioning the high voltage connector and the at least a portion of cable to which the high voltage connector is attached in a housed position by moving the cable through the push through high voltage connector receptor in a direction away from the other module to which high voltage connection is to be made.

26. (Original): The method of claim 25 further comprising:

the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

27. (Original): The method of claim 25, further comprising:

providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor to prevent energizing the cable when the connector is in other than the contact position.

28. (Original): The method of claim 26, further comprising:

providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor to prevent energizing the cable when the connector is in other than the contact position.

29.-32. (Canceled)

33. (Original): The apparatus of claim 27, further comprising:

clamping the disconnection means to prevent the high voltage connector from moving from the contact position.

34. (Original): The apparatus of claim 28, further comprising:

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clamping the disconnection means to prevent the high voltage connector from moving from the contact position.

35. (Original): The apparatus of claim 29, further comprising:

clamping the disconnection means to prevent the high voltage connector from moving from the contact position.

36. (Original): The apparatus of claim 29, further comprising:

clamping the disconnection means to prevent the high voltage connector from moving from the contact position.

37. (Original): An apparatus for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a first high voltage connector attached to at least a portion of the cable on one end of the cable and a second high voltage connector attached to at least a portion of the cable at a second end of the cable;

a push through high voltage connector receptor within the first module;

a disconnection mechanism within the first module adapted to move the high voltage connector and the at least a portion of cable to which the high voltage connector is attached through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made; and

a retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector.

38. (Original): An apparatus for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

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a first and a second high voltage connector attached to at least a portion of the cable on each end of the cable;

a push through high voltage connector receptor means within the first module for connecting and disconnecting the high voltage connector to the first module;

a disconnection means within the first module for positioning the high voltage connector and the at least a portion of cable to which the high voltage connector is attached in a housed position by moving the cable in a direction away from the other module to which high voltage connection is to be made; and,

a retractable connector means within the second module moveable toward the first module from a retracted position into an extended position, for making electrical contact with the second high voltage connector.

39. (Original): A method for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

placing a first and a second high voltage connector on at least a portion of the cable on each end of the cable;

a push through high voltage connector receptor means within the first module for connecting and disconnecting the high voltage connector to the first module;

a disconnection means within the first module for positioning the high voltage connector and the at least a portion of cable to which the high voltage connector is attached in a housed position by moving the cable in a direction away from the other module to which high voltage connection is to be made; and,

a retractable connector means within the second module moveable toward the first module from a retracted position into an extended position, for making electrical contact with the second high voltage connector.

40. (Previously presented): An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

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a high voltage connector electrically connected to at least a portion of the cable on at least one end of the cable;

a push through high voltage connector receptor within one module; and,

a disconnection mechanism within the one module adapted to move the high voltage connector through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made.

41. (Previously presented): The apparatus of claim 40 further comprising:
the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

42. (Previously presented): The apparatus of claim 40, further comprising:
an interlock mechanism in operative connection with the disconnection mechanism and adapted to provide an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

43. (Previously presented): The apparatus of claim 41, further comprising:
an interlock mechanism in operative connection with the disconnection mechanism and adapted to provide an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

44. (Previously presented): The apparatus of claim 42, further comprising:
an engaging mechanism engaging the cable and holding the cable in a fixed position relative to the disconnection mechanism as the high voltage connector moves between the contact position and the housed position.

45. (Previously presented): The apparatus of claim 43, further comprising:

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an engaging mechanism engaging the cable and holding the cable in a fixed position relative to the disconnection mechanism as the high voltage connector moves between the contact position and the housed position.

46. (Previously presented): The apparatus of claim 40, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the clamping mechanism to prevent the high voltage connector from moving from the contact position.

47. (Previously presented): The apparatus of claim 41, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

48. (Previously presented): The apparatus of claim 42, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

49. (Previously presented): The apparatus of claim 43, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

50. (Previously presented): The apparatus of claim 44, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative

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with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

51. (Previously presented): The apparatus of claim 45, further comprising:
a clamping mechanism in cooperative connection with the disconnection mechanism when the high voltage connector is in the contact position and cooperative with the disconnection mechanism to prevent the high voltage connector from moving from the contact position.

52. (Previously presented): An apparatus for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a high voltage connector electrically connected to at least a portion of the cable on at least one end of the cable;

a push through high voltage connector receptor means within one module for connecting and disconnecting the high voltage connector to the module; and,

a disconnection means within the one module for positioning the high voltage connector in a housed position by moving the connector through the connector receptor in a direction away from the other module to which high voltage connection is to be made.

53. (Previously presented): The apparatus of claim 52 further comprising:
the high voltage connector receptor comprising:

an open cylindrical connector with a contacting surface contained on the interior wall of the cylindrical connector.

54. (Previously presented): The apparatus of claim 52, further comprising:

an interlock means for, in cooperation with the disconnection means, providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

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55. (Previously presented): The apparatus of claim 53, further comprising:
an interlock means for, in cooperation with the disconnection means, providing an indication of the high voltage connector being in a position other than in the contact position relative to the connector receptor.

56. (Previously presented): The apparatus of claim 54, further comprising:
an engaging means for engaging the cable and holding the cable in a fixed position relative to the disconnection means as the high voltage connector moves between the contact position and the housed position.

57. (Previously presented): The apparatus of claim 55, further comprising:
an engaging means for engaging the cable and holding the cable in a fixed position relative to the disconnection means as the high voltage connector moves between the contact position and the housed position.

58. (Previously presented): The apparatus of claim 52, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

59. (Previously presented): The apparatus of claim 53, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

60. (Previously presented): The apparatus of claim 54, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the

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disconnection means to prevent the high voltage connector from moving from the contact position.

61. (Previously presented): The apparatus of claim 55, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

62. (Previously presented): The apparatus of claim 56, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

63. (Previously presented): The apparatus of claim 57, further comprising:
a clamping means in cooperative connection with the disconnection means when the high voltage connector is in the contact position and cooperative with the disconnection means to prevent the high voltage connector from moving from the contact position.

64. (Previously presented): A method for electrically connecting two closely positioned high voltage modules with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:
attaching a high voltage connector to at least a portion of the cable on at least one end of the cable;
providing a push through high voltage connector receptor within one module for connecting and disconnecting the high voltage connector to the module; and,
positioning the high voltage connector in a housed position by moving the connector through the push through high voltage connector receptor in a direction away from the other module to which high voltage connection is to be made.

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65. (Previously presented): The method of claim 64 further comprising:
the high voltage connector receptor comprising:
an open cylindrical connector with a contacting surface contained on the
interior wall of the cylindrical connector.

66. (Previously presented): The method of claim 64, further comprising:
providing an indication of the high voltage connector being in a position other
than in the contact position relative to the connector receptor to prevent energizing the
cable when the connector is in other than the contact position.

67. (Previously presented): The method of claim 65, further comprising:
providing an indication of the high voltage connector being in a position other
than in the contact position relative to the connector receptor to prevent energizing the
cable when the connector is in other than the contact position.

68. (Previously presented): The apparatus of claim 66, further comprising:
clamping the disconnection means to prevent the high voltage connector from
moving from the contact position.

69 (Previously presented): The apparatus of claim 67, further comprising:
clamping the disconnection means to prevent the high voltage connector from
moving from the contact position.

70. (Previously presented): An apparatus for electrically connecting a first and a
second closely positioned high voltage module with little or no bend and without any
loops in an electrical interconnecting coaxial cable, comprising:
a first high voltage connector electrically connected to at least a portion of the
cable on one end of the cable and a second high voltage connector electrically connected
to at least a portion of the cable at a second end of the cable;
a push through high voltage connector receptor within the first module;

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a disconnection mechanism within the first module adapted to move the high voltage connector through the connector receptor from a contact position to a housed position in a direction away from the other module to which high voltage connection is to be made; and

a retractable connector within the second module moveable toward the first module from a retracted position into an extended position, in which extended position electrical contact is made with the second high voltage connector.

71 (Previously presented): An apparatus for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

a first and a second high voltage connector electrically connected to at least a portion of the cable on each end of the cable;

a push through high voltage connector receptor means within the first module for connecting and disconnecting the high voltage connector to the first module;

a disconnection means within the first module for positioning the high voltage connector in a housed position by moving the cable in a direction away from the other module to which high voltage connection is to be made; and,

a retractable connector means within the second module moveable toward the first module from a retracted position into an extended position, for making electrical contact with the second high voltage connector.

72. (Previously presented): A method for electrically connecting a first and a second closely positioned high voltage module with little or no bend and without any loops in an electrical interconnecting coaxial cable, comprising:

electrically connecting a first and a second high voltage connector to at least a portion of the cable on each end of the cable;

providing a push through high voltage connector receptor within the first module for connecting and disconnecting the high voltage connector to the first module;

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disconnecting the high voltage connector within the first module by positioning the high voltage connector in a housed position by moving the connector in a direction away from the other module to which high voltage connection is to be made; and,

providing a retractable connector within the second module moveable toward the first module from a retracted position into an extended position and making electrical contact with the second high voltage connector in the extended position.

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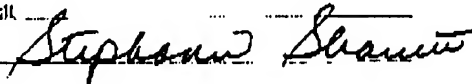
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Stephanie Shurtell
(Name)

(Signature)



In re Application of:

Robert B. Saethre et al.

Serial No.: 10/606,412

Filing Date: June 25, 2003

Title: METHOD AND APPARATUS FOR
ELECTRONICALLY
INTERCONNECTING HIGH VOLTAGE
MODULES POSITIONED IN
RELATIVELY CLOSE PROXIMITY

Examiner: Edwin A. Leon

Group Art Unit: 2833

Conf. No.: 5670

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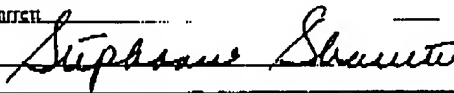
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Stephanie Sharrett
(Name)

(Signature)



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Commissioner for Patents
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None